EDITORIAL
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More Salesmanship Needed in the Boiler and Radiator Field

ON a prominent corner of the central square in an Ohio city of sixty thousand inhabitants is a large bronze tablet imbedded in the sidewalk bearing the epitaph:

"Here lies
It-Can't-Be-Done.
Buried by
The Victory Loan Committee."

When that city's allotment for the fifth Liberty or Victory Loan was made, many of its citizens said the amount was beyond the city's ability to pay because its business had suffered a great depression during the war. The committee appointed to raise the money met the same feeling wherever they went. The possibility of raising that big sum seemed absolutely hopeless to the average person. But the members of the committee were of the same stuff as that which went into the making of those khaki clad lads in Champagne, Chateau Thierry, and the Argonne. They "went over the top" and won. They won because they fought with every bit of mental and physical energy they possessed. They were too proud to quit.

Survey Shows Decreasing Sales in Boiler and Radiator Field.

Those same qualities are needed right now and needed badly in the heating business. Information gathered to date by the Research Department of "Domestic Engineering", in a survey started several months ago for learning the developments during the past few years in the heating of the American home, shows an increase in the furnace business of 73 per cent, while the sale during the same period of boilers and radiators suitable for the heating of homes not only fails to show a proportionate increase, but according to data so far collected shows an actual decrease in volume. The reason given for this condition by manufacturers, jobbers, and contractors alike almost invariably is the difference in price between a boiler and radiator heating system and a furnace installation. And herein lies the great danger to the boiler and radiator heat industry. It is not the fact that there is a difference in price—there is a much greater difference in price between a Studebaker and a Ford, and still the Studebaker company is not planning to quit—but it is the fact that the great majority of those connected with the manufacture, sale, and installation of boiler and radiator heat seem so thoroughly convinced the difference in price is an insurmountable obstacle. Many are so completely overcome by the price bugbear that they have almost quit fighting. Many others seem to be doing little but waiting for things to improve.

"We've Got To Wake Up," Says Prominent Heating Contractor.

Heating contractors, who confine themselves exclusively to work in big commercial buildings or the more expensive residences generally, seem to feel that the developments in recent years have not and cannot affect them, since they do not attempt to get business from the builders of moderate sized homes, which they consider the only field for the furnace. Some, however, are awakening to the fact that they are being affected. One of the largest and most progressive heating contractors in a city of approximately one million people said recently: "It is time that some decisive action was taken to check the decrease in the use of boiler and radiator heat in the moderate sized residence. Those of us, who confine ourselves exclusively to large work, used to think that what the owner of an ordinary house used to heat it with was no concern of ours, but many of us have changed our minds, for we have been made to realize that even if we are not affected directly, we are indirectly. This has been shown very clearly here in the last few months when a good share of the work let on large construction was taken by firms that have never been in this field before. Heretofore these firms confined themselves entirely to residence work, but as fewer and fewer of the moderate sized residences built install radiator heat, they have drifted into our field and are willing to work at little or no profit to get started. It is only natural that they should do this, but it certainly is having a serious effect on our business. Another thing that is very noticeable around this territory is the number of school houses, stores, etc., that are putting in warm air heat that normally would have installed some form of radiator heat. It is getting to be a serious proposition."

The Situation in Cleveland.

Many have argued that one of the big reasons for the decrease in the use of boiler and radiator heat lies in the number of cheaply constructed homes put up in

the past couple of years. Though there may be some little basis for this argument, some other explanation is necessary for such conditions as that found in Cleveland, Ohio. In this city the Builders' Exchange bulletins for the first twelve days in May of this year listed 91 permits for dwellings. Thirty-five of these were for buildings costing $7,000 or over, and quite a few were for homes costing $9,000, $10,000, $12,000, $15,000, and one at $18,000. All called for warm air heat with the exception of two at $4,000 each. The building commissioner of that city assured the investigator that the condition described for the first twelve days of May have obtained pretty close for the past year or two. In this connection a statement by a furnace manufacturer to the effect that his company has made installations costing as high as $3,000, in residences, is also rather significant, as three-thousand dollar heating jobs are not likely to go into very cheap residences.

Price Isn't Everything.

The difference in price between boiler and radiator heating systems and furnaces is not alone sufficient explanation for the decrease in the use of the former. The cause lies deeper than that, otherwise how would the manufacturers of high-priced automobiles, clothing, plumbing goods, and every other conceivable kind of product build up their great businesses? Some of the greatest commercial statisticians of this country maintain that it is the history of business that over long periods of years it is the firm that can sell that develops and lasts. Such a firm will often outgrow and outlast firms that put out a superior product but that do not have the highest type of selling ability. Where there is a choice between two practical products, as in the case of radiator or furnace heat for the moderate sized home, the actual superiority is not nearly so important as the buyer's and user's opinion of their superiority. The people connected with the furnace industry have convinced a great many home owners and builders in this country that warm air heat is the best for the home. In fact, they have even convinced some steam fitters of this, as evidenced by the fact that a heating contractor in a large city only a short time ago took out his hot water plant and put in a furnace because the doctor recommended it and because he himself was finally convinced that it would be more healthful for his family. How can a man like this make a success of selling boiler and radiator heating systems?

Business experts generally agree that we are now in the first part of a long period of gradually declining prices, and they are also pretty generally agreed that the firm having a sound practical article to market can last only if it has a high order of selling ability and uses it tirelessly. The contractor who expects a great increase in business simply because boilers, radiators, and wages may eventually be somewhat lower is due for a considerable disappointment, for if prices gradually decline for boilers and radiators, so will the prices for furnaces. The price of skilled labor, however, never falls as far as that for unskilled and as the latter is often used in the installation of furnaces, the contractor is not likely to be benefited greatly by generally lower prices.

Must Convince Buyer of Superior Product.

In order to check the decrease in the use of boiler and radiator heat, it is necessary for the whole industry, manufacturer, jobber, and contractor, and particularly the latter, to realize that they must convince the average home builder and home owner of the superiority of boiler and radiator heat. It is a superior form of heating, it is a better investment for the home owner, but he must be so thoroughly convinced of that fact that he will buy it in spite of the fact that it will cost him a few hundred dollars more. However, before the average home owner can be sufficiently convinced to buy, the manufacturers, jobbers and contractors must shake off the seeming indifference developed during the period when it was simply a matter of taking care of business that came almost without any effort; they must be thoroughly convinced of the great superiority of their own product, and above all, they must no longer be frightened by and meekly submit to that bugbear, "the difference in price."

If it Can be Done in California, Why Not Elsewhere?

That boiler and radiator heat can still be sold to the average home builder has been proved in a number of places, as, for instance, in a California city, where, because of the mild climate the furnace was making great inroads in the contractors' business. The contractors, however, did not quit and blame the difference in price. They got together and talked the matter over and decided to fight it out. They bought space in the newspapers and used it to explain the merits of boiler and radiator heating systems. They were thoroughly convinced of this fact themselves, and finally succeeded in convincing a great many home owners of it, and the result has been that the contractors' business has shown a healthy growth in volume and also in profits.

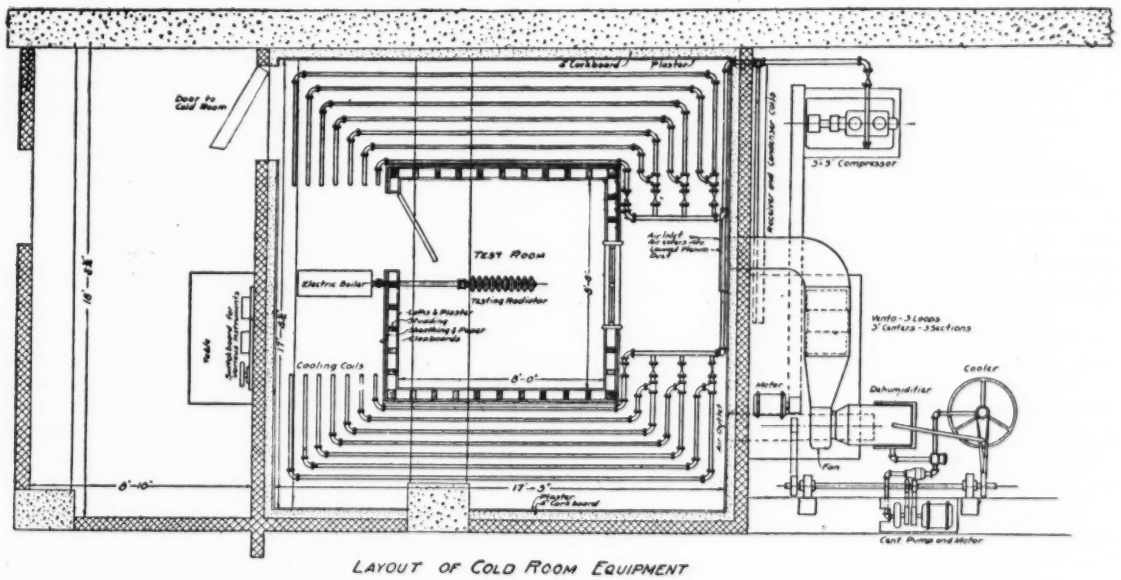
Hard work, persistent and intelligent salesmanship is necessary at this time and is bound to result in the funeral of the "IT-CAN'T-BE-DONE" of the boiler and radiator heating business.

EXPERIMENTAL ROOM *for* HEAT TRANSMISSION TESTS*

Cold Room at Research Laboratory of A. S. H. and V. E. Will Be Equipped With Refrigerating Machine, Humidifier, De-Humidifier and Fan

By L. A. Scipio, Acting Director, Research Laboratory, American Society of Heating and Ventilating Engineers.

THE recent growth and development of the science of heating and ventilating is making it imperative that we find out more about the loss of heat through various building materials. It is highly desirable that the empirical tables, which we have inherited and which have been slightly modified and published by so many authors, be subjected to a complete overhauling and verification. Only a part of the tables in actual use have been derived from experiment, the remainder having been calculated. In addition to the old and well known building materials, each year brings with it new types to be used in this connection and new combinations of the already existing ones. It is therefore desirable that we, as a society, be in a position to determine the relative values of these types as they come along as well as to obtain more accurate knowledge of those already in use.



LAYOUT OF COLD ROOM EQUIPMENT

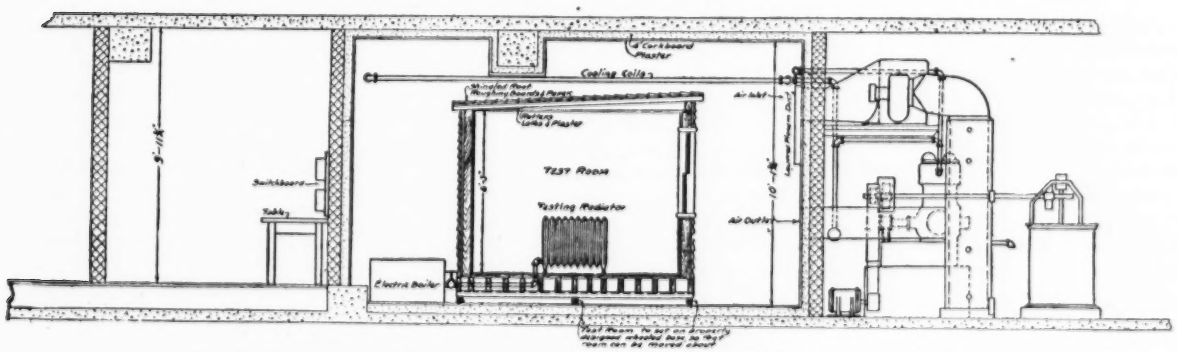


Fig. 1. Experimental Room at Research Laboratory for Conducting Heat Transmission Tests.

Our present information is based, to a great extent, upon the findings of experimenters as far back as 80 years. Much credit must be given to such men as Peclet, Recknagel, Rietschel, Grashof, and others for the pioneer work which they did in the field of heat conduction. This, however, is not adequate

*From the Journal of the Society.

to meet the needs of the present time. The constants which these investigators determined and which have been used in calculating so many of the tables now in use, were derived under ideal conditions and do not take sufficiently into consideration the actual conditons which one meets in every-day practice. In view of these facts, it is better not only to have tables which have been compiled from actual experiment over a wide range of temperature, etc., but also to have factors determined experimentally on a large scale, to take account of the many variables entering into the calculation of heat loss in practice.

The experiments on heat loss which have been conducted up to the present time have taken account only of the materials used singly, such as testing one sheet of cardboard, or a single sheet of building paper, a thin layer of concrete, or of boards. It is all very well to have a knowledge of these materials singly, and they may prove to be somewhat of an index as to what may be expected when used in combined form, but we do not know for a certainty what the effect of combining them is going to have upon the heat loss. It is possible that the net heat-saving properties will be equal to the sum of the combined values; but it may be greater, or it may be less. It would not be at all surprising to discover that it is less.

Another element which the testing of single layers of materials neglects to account for, is air space. It is impossible by using two or more thicknesses combined, to avoid air space, and indeed we do not want to avoid it. We already know from previous experience that air spaces are valuable for insulation purposes and it is the hope that, by testing materials together, we may be able to determine their real value.

Several types of apparatus have been used in this country in recent years for making determinations of the rate of conduction through various kinds of building materials on greater or smaller scales. The two methods which have found the most favor are the hot air box and the electrically heated plate. It is interesting to compare the results of these two methods on the same kind of material, and one of the objects of the Research Laboratory will be to determine which of the two is the more accurate and should be made the standard in operation. Until recently the box method seemed to be in greater favor, but at the present time the electrical plate method seems to offer some advantages over the former, so that it is possible that it may become the standard form of apparatus.

Experiments conducted in a laboratory by any of the methods used today take into account only certain elements contributing to heat loss which enter into those of a complete building. Engineers are anxious to know just what allowance to make for heat loss from the walls of buildings after they have been erected. Among the elements entering into and affecting this loss are the wind velocity, degree of humidity, and the temperature range. The laboratory tests as a rule, take into account only the temperature range, humidity and air motion being neglected. In the average building also, the fact that the side of a building is wet or dry will no doubt affect its heat loss; also the character of its window construction, the way the windows are set in the walls, the character of roofing materials, the slope of the roofs and its direction with regard to prevailing winds, the character of the floor, relation of outside rooms with reference to other rooms in the building, etc., all relate to heat losses against which the engineer must provide.

The Research Laboratory is following out two methods of investigation which may be used more or less to check one another. The first is the electrical plate, air cooled. This plate has but recently been completed and is now in operation at Pennsylvania State College under the direction of Prof. A. J. Wood. It is large enough to take specimens 2 ft. square and up to 4 inches thick, or it can be applied to walls already built if not too thick. This plate will admit of testing materials over a wide range of temperature, humidities and wind velocities. The influence of position of the specimen on heat loss can also be determined; that is, the effect when the plate is in a horizontal plane with the specimen above or below it as compared to that when it is operated vertically. After a frame building has been in use for a number of years the heat retaining capacity of its walls changes materially and we have no accurate method of calculating the heat loss from such a building. We hope to develop this instrument in such a way that it can be applied directly to such walls and their heat retaining qualities can be determined.

The second method is to carry out tests on a full sized room. The cold room which has been prepared at the laboratory is to be equipped with a refrigerating machine, a humidifier, a dehumidifier, and a fan arranged as shown in Fig. 1. These pieces of apparatus are to be used in controlling as nearly as possible all of the factors which influence heat loss under normal outside conditions. After a building has been erected we may assume that no change is to be made in its character other than that effected by the elements. Therefore, heat loss depends on outside temperature, wind velocity, and humidity.

A room of standard frame construction is designed on which to conduct the first step of experiments. This room is 8 ft. square and 6 ft. high with the customary spacing of joists and studding. The floor consists of a layer of rough boards on top of which is a layer of building paper, then the matched flooring. The walls on the outside consist of 1-inch lining, a layer of building paper and weather boarding. The inside is finished with lath and the usual number of coats of plaster. There is also an opportunity to study the effect on heat loss of papering the walls. The ceiling is plastered the same as the walls, and the roof is made of the usual sheathing, covered with cedar shingles laid 5 inches to the weather. The room is heated with a radiator supplied by steam from an electrical boiler which is under the automatic control of a thermostat suitably placed within the room.

The first set of experiments will consist of determining the heat loss from this room in still air throughout a wide range of temperatures and with varying humidities. The test will then be made for infiltration, which will be done by connecting the discharge of the fan to the perimeter of the side of the building containing the window by means of a canvas hood and the pressure will be raised through a considerable range in order to determine the effect of wind velocity upon this item. The standard window will then be taken out and other windows of various types of construction will be substituted in order to ascertain the effect of good, bad, and indifferent construction, and that of weather strips upon infiltration. There will also be a blind door and window made from wall material and well fitted to determine air leakage through walls alone.

It is known that the heat loss from walls of a building is considerably increased by the sweeping action of the wind across these surfaces, but to just what extent remains undetermined. The plan includes securing definite information on this point. By combining the latter with that of infiltration we can get the total effect of the wind upon heat loss. After a wide range of experiments have been performed in this manner, the standard floor and roof will be removed and other types will be substituted alternately in order to determine their relative efficiencies.

In addition to the work to be carried out on standard frame construction, other types of construction will be used, such as brick, hollow tile, stucco with inside plastered walls, or bristol board, and various other compositions, with a view to determining their relative values. It is to be hoped that at the end of the period of investigation we will be able to form new tables based upon actual experiments under the various conditions, which will be of a great deal of value to men who are engaged in building construction and in heating the same.

HEATING *and* VENTILATING *a* DENVER HIGH SCHOOL

System is Combination or Split Type—No Basement in Building, so Distribution Made Possible in Sub-corridor—Humidity and Temperature Control, Air Washing and Ozone Equipment for Sterilizing Provided

(Continued from Page 354 in the May 21st Issue.)

Power for operating the fan through the chain drive is furnished by a 30 h. p. 220 volt, 3-phase, 60-cycle motor, furnished with speed controller permitting a reduction of 40 per cent in speed, and allowing any speed within that range at which the controller may be set.

Air passes through the fan and is delivered to the main tunnel at its central point at a temperature of 71 degrees F. Distribution is made to the right and to the left along the main tunnel and continuing out to the end of the branch tunnels as shown in Fig. 9. Riser ducts are indicated at intervals along its length. These extend up and serve the various portions of the building as shown in plan in Figs. 10 and 11. Delivery of air is made into the rooms through register faces having special inside deflectors and diffusers as shown in detail in Fig. 1.

Very elaborate provison has been made for venting the air which has passed through the various rooms. Between the ceiling of the second floor and the floor of the attic an additional concrete slab has been erected, thus forming a closed chamber. This is used as a "vent plenum chamber," and whenever practically possible vents from the class rooms, etc., have been taken up by means of riser ducts into this space. Due to the greater height of the central portion of the building, considerable engineering skill has been manifested in so designing the work as to reach the desired standard of ventilation while at the same time avoiding the intrusion into those portions of the building given over to the work of the school, of ducts or other means of transferring air from one portion to another of the building. For instance, much ingenuity has been exercised in the venting arrangement of the right wing and the left wing, and the auditorum. As noted above, there exists below the attic, over the central portion of the building, a vent plenum chamber. All of the class rooms, etc., in this portion of the building vent by means of risers into this space. The venting of the right wing and the left wing is a special system.

A reference to Fig. 9 will show, located in the heat tunnels, a system of return ducts, the air in which is moving back to the fan, in a direction opposite to that of the current of heated air in the tunnel. At the extreme right will be noted a 28x28-inch duct. This connects to a 20x60-inch riser, which in turn becomes a duct on the ceiling of the lunch room, and finally leads into the girls' gymnasium, venting it at the base-board line. Similarly a 16x24-inch duct connects to a 20x27-inch riser and vents the lunch room on the ground floor. Between these a 9x16-inch duct leads to a riser which vents the study kitchen, and a 12x20-inch duct leads to a riser venting the science room on the first floor. The main duct is increased in size to 28x38 inches, and a 6-inch round duct is connected, leading to a 10x10-inch opening in floor under lockers. The duct is increased in size to 28x78 inches, and connection made to a 26x66-inch riser, which joins a horizontal duct of same size on the ceiling to the boiler room, and finally leads to the space under the stage, where the vented air leaves the auditorium through ten 14x22-inch register faces placed in the front of the stage platform.

Beginning at the extreme left wing a 12x16-inch duct connects to a riser, which with another farther on, leads to and vents the balcony space in the boys' gymnasium. Between these is located at 14x26-inch duct which connects to a riser leading to and venting the machine shop. It will be noted by reference to Fig. 9 and Fig. 1, that the heated air is sent in at the extreme end of the right and left wings, and the movement of air returns through the rooms. In the case of the left wing, the ventilating current moves first through the automobile shop, and then through the machine shop, finally leaving through the 14x16-inch duct just mentioned. Two 15x16-inch connections are made to the main duct, one of which vents the drafting room, and one the open air class room, and the main duct is increased to 16x76 inches and leads back to the fan room in a manner similar to the duct from the right wing.

A reference to Fig. 1, and the detail shown in Fig. 13 will indicate the manner of handling the re-circulating air, and also that of by-passing air from the upper vent plenum chamber when desired. The air in the re-circulating system just described is so handled at all times. That from the vent plenum chamber, however, may be either vented to the atmosphere or re-circulated at will. This latter movement is controlled by three louvre dampers. Leading from the vent plenum chamber is a 72x72-inch opening which connects to a duct of like area leading to the atmosphere and having a ventilator on its outlet. There also leads, downward, from the vent plenum chamber a shaft, the lower end of which terminates at the fan room, as shown in Fig. 13. A louvre damper is located in the outlet to the atmosphere under the ventilator, one at the bottom of the shaft leading from the vent plenum chamber to the fan room, and a third at the fan room side of the fresh air duct leading to the outside from the fan room floor. The normal position of these is: vent from vent plenum chamber, open; re-circulating shaft, closed; fresh air duct, open. These are controlled by hand switches which operate damper motors. When it is desired to re-circulate the air the vent to the atmosphere is closed, the fresh air closed, and the shaft damper open. The movement is then as shown in Fig. 13.

A separate system of ventilation is installed for venting toilets, shower rooms, lockers, etc. The movement of this air is upward, except in a few cases in which the first movement is downward, as will be noted by reference to the 14x24-inch duct at the right side, and a 12x14-inch duct at the left side of Fig. 9. These are brought downward and through the heat tunnel in order to connect to risers leading upward directly to the attic. Horizontal ducts are run in the attic space connect-

ing to the top of all vent risers on this separate system. There are eight such risers and the ducts run in size from 12x14 inches to 24x24 inches on the left side, and one 14x24-inch on the right side, as shown in Fig. 5. These ducts connect through 8-inch canvas joints to the side inlet of a single width, left hand up-blast exhaust fan. This fan discharges through the roof to the atmosphere through an 18-inch ventilator. A 2 h. p., 220-volt, 3-phase, 60-cycle motor, connected to the fan by means of a silent chain drive, totally enclosed in a steel housing and operating in a bath of oil.

All ducts in the tunnels and in the partititions are covered with asbestos paper 1/16-inch thick, and those ducts in outside wall locations are covered with three layers of 1/16-inch paper.

It will be noted by a reference to Fig. 1 and Fig. 8 that all air, whether partially taken from the outside, or entirely re-circulated, before beginning the movement through the fan must first pass through the ozone apparatus for sterilizing the air, and then pass through the air washer for the removal of dust and other foreign particles. Under these conditions all of the air is kept constantly cleaned and purified whether or not it is re-circulated. And under all conditions of operation a material saving in fuel is effected by reason of conserving the heat in that portion of the air re-circulated.

The machine for producing the ozone consists of a series of ozone generating units made up of aluminum foil interior electrodes mounted in a glass di-electric cylinder, having external aluminum pointed electrodes. Aluminum is used for the reason that it is the only metal which is not affected by the static

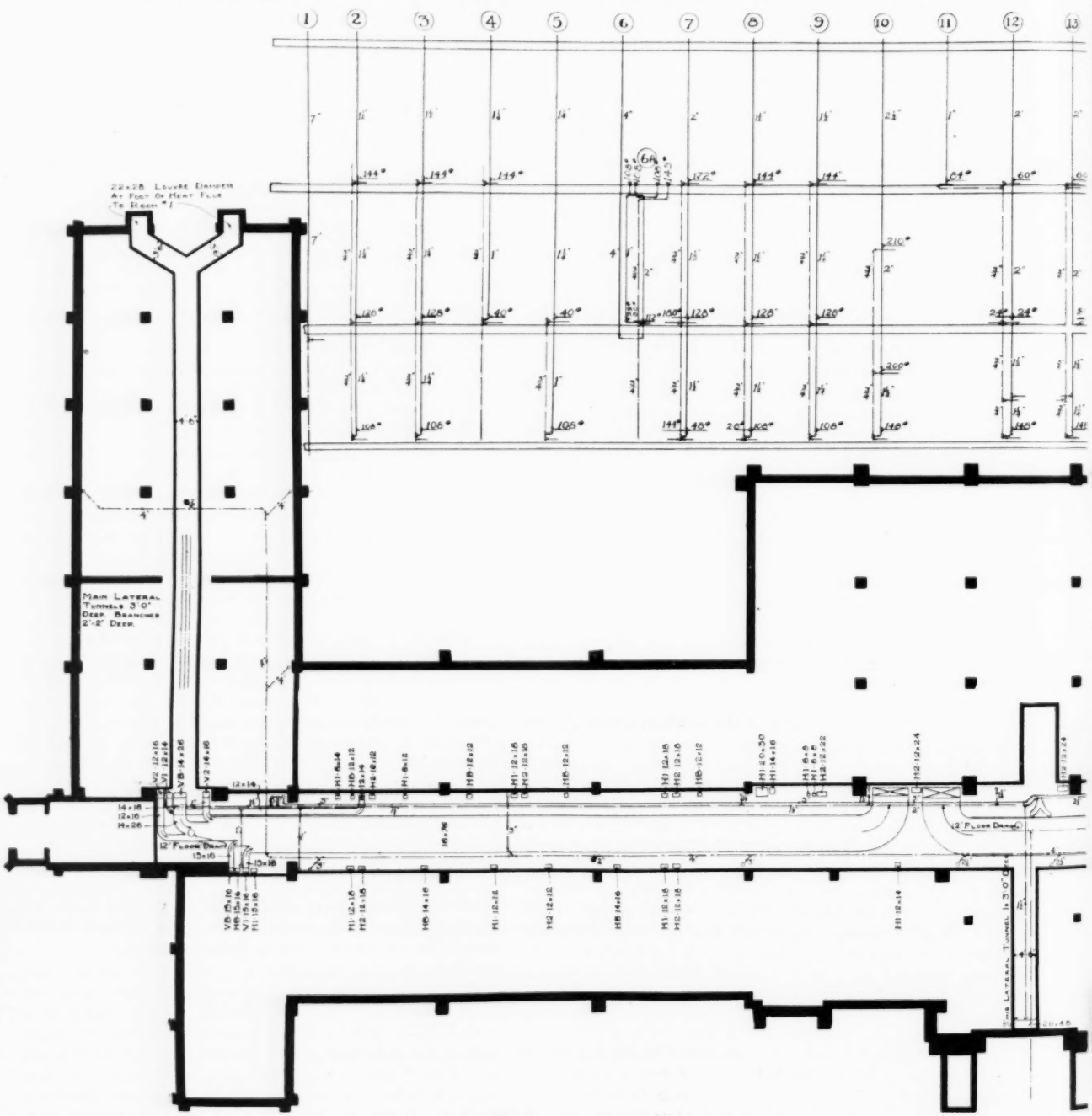


Fig. 9.

discharge. The units are mounted on aluminum angles, fastened to the main frame by insulators. All conducting wires are of aluminum. It is said that the success of the apparatus is due to the use of a continuous static discharge instead of the electric spark. In the use of a spark considerable nitrous oxide is formed which is objectionable. In this machine alternating current is used at ordinary voltage and a transformer used to step up the voltage to about 10,000. Each unit of the machine contains about 1,000 of the pointed electrodes, which rest in direct contact against the glass cylinder, thus bringing about the effect of a constant glow with no spark. Each of the pointed electrodes has the capacity to purify 1 cubic foot of air per minute. As each unit has 1,000 points the capacity of each one is 1,000 cubic feet per minute. A rheostat is mounted on the base for the control of current used. The consumption of current is said to be small, and of course the saving in fuel should be great, as a very large amount of the original heat remains in the re-circulated air.

The use of ozone for purifying air in schools, theaters and other places of assembly is increasing. It has, of course, long been known that certain localities which were noted for the health restoring qualities of the atmosphere, owed their reputation to the presence of an unusual amount of ozone in the air. This constituent of the air is present naturally in greater or less quantities at all times. It is in effect an excess of oxygen. The free oxygen is a powerful germicide, and as unpleasant odors are due to the presence of decaying matter—which is a bacterial action—and as the free oxygen destroys

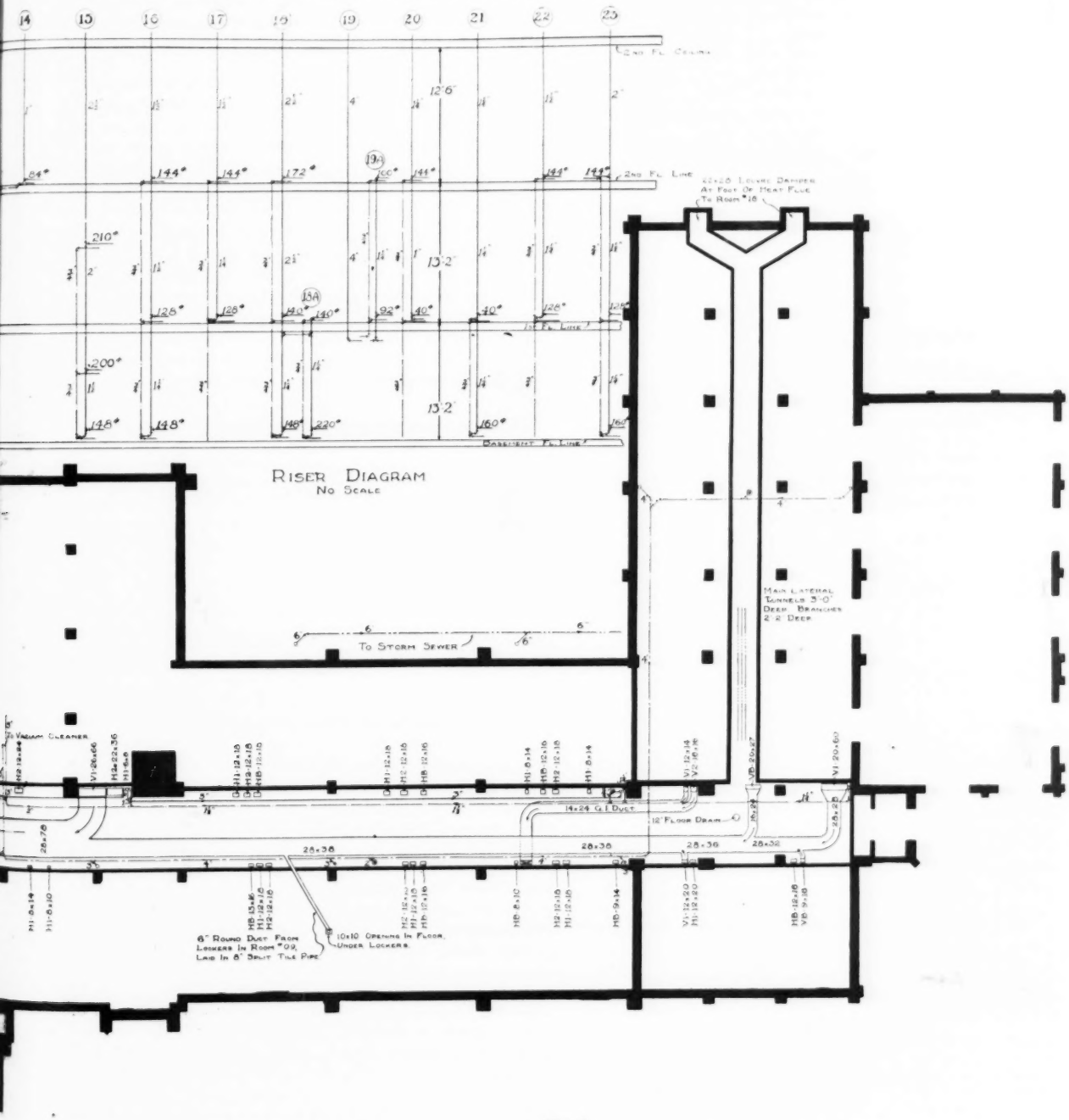


Fig. 9.

Room Numbers	No. Of Vent Ducts.	No. Of Heat Ducts	Length Of Vent Ducts	Length Of Heat Ducts	Size Of Vent Register Faces.	Size Of Heat Register Faces.	Size Of Vent Duct.	Size Of Heat Duct	Size Of Register.	Size Of Locker Vent.	Gauge Of Metal.
01		2		13' 10"		12x30		12x24			24
02	1				22x26		14x26				24
04	1	1	36'0"	8'- 0"	16x32	16x32	15x16	15x16			26
05	2	2	36'0"	8'- 0"	16x32	16x32	14x16	14x16			26
06	1		38'6"		[3] 8x12		12x16				26
07	1		36'0"		8x 6		8x10				26
08	1		38'6"		18x24		8x24				24
09	1	1	36'0"	8'- 0"	16x28	16x28	13x16	13x16		4x6	26
010	1	1	36'0"	8'- 0"	16x28	16x28	12x16	12x16			26
011		1		8'- 0"		10x20		8x10			26
012	1	1	36'0"	8'- 0"	14x20	14x20	9x14	9x14			26
013	1	1		8'- 0"	9x30	16x22	9x16	12x16			26
015	1	2		8'- 0"	27x36	[2] 12x40	20x27	[2] 12x24			24
016	2	2	38'0"	8'- 0"	[2] 16x28	[2] 16x28	12x16	12x16			26
017	1	1	36'0"	8'- 0"	16x28	16x28	12x16	12x16			26
020	1	1		12- 6	22x22	16x32		14x16	22x22		26
021	1	2	36'0"	8'- 0"	22x30	[2] 12x30	12x22	12x12			24x26
022	1	2	36'0"	8'- 0"	22x30	[2] 12x30	12x22	12x12			24x26
1	2	2	24'0"	28'- 0	16x48	28x36	14x16	22x28			24x26
2	1		14'2"		14x24		12x14				26
4	1	1	23'6"	21'- 2"	16x32	16x32	15x16	15x16			26
5	1	1	23'6"	21'- 2"	16x32	16x32	12x16	12x16		4x6	26
6	1	1	23'6"	21'- 2"	16x32	16x32	12x16	12x16		4x6	26
7	1	1	23'6"	21'- 2"	16x32	16x32	12x16	12x16		4x6	26
8	1	1	23'6"	21'- 2"	14x24	14x24	12x14	12x14			26
10	1	1	23'6"	21'- 2"	14x16	14x16	8x14	8x14			26
11	1	1	23'6"	21'- 2"	10x18	10x18	8x10	8x10			26
12	1	1	23'6"	21'- 2"	16x32	16x32	12x18	12x18		4x6	26
13	1	1	23'6"	21'- 2"	16x32	16x32	12x16	12x18		4x6	26
14	1	1	23'6"	21'- 2"	16x32	16x32	12x18	12x18		4x6	26
15	1	1	14'2"	21'- 2"	20x26	20x26	12x20	12x20			24
17	1		14'2"		14x24		12x14				26
18	1	2	14'2"	26'- 0"	38x42	[2] 28x36	20x60	22x28			22x24
19	1	1	23'6"	21'- 2"	14x18	14x18	8x14	8x14			26
20	1	1	23'6"	21'- 2"	14x18	14x18	8x14	8x14			26
21	1	1	23'6"	21'- 2"	16x32	16x32	12x18	12x18		4x6	26
22	1	1	23'6"	21'- 2"	16x32	16x32	12x18	12x18		4x6	26
23	1	1	23'6"	21'- 2"	8x14	8x14	6x 8	6x 8			26
25		6		[4] 29'2"	[10] 14x22	[2] 30x48		[3] 12x24			24
				[1] 12'0"		[3] 24x42		[1] 12x22			
				[1] 34'0"		[2] 30x30		[1] 30x30			
								[1] 20x30			
26	1	1	23'6"	21'- 2"	16x32	16x32	12x18	12x18		4x6	26
27	1	1	23'6"	21'- 2"	16x32	16x32	12x18	12x18		4x6	26
28	1	1	23'6"	21'- 2"	12x16	12x16	8x12	8x12			26
29	1	1	23'6"	21'- 2"	14x18	14x18	8x14	8x14			26
101	1	1	10'0"	32'- 4"	16x32	16x32	12x18	12x18		4x6	26
102	1	1	10'0"	32'- 4"	16x32	16x32	12x18	12x18		4x6	26
103	1	1	10'0"	32'- 4"	16x32	16x32	12x18	12x18		4x6	26
104	1		12'0"		8x16		8x 8				26
105	1		12'0"		6x12		6x 6				26
106	2	2	10'0"	32'-4"	12x36	24x36	12x12	20x24			24x26
107	1		12'0"		6x12		6x 6				26
108	1		12'0"		8x16		8x 8				26
109	1	1	10'0"	32'- 4"	16x32	16x32	12x18	12x18		4x6	26
110	1	1	10'0"	32'- 4"	16x32	16x32	12x18	12x18		4x6	26
111	1	1	10'0"	32'- 4"	16x32	16x32	12x16	12x16		4x6	26
112	1		23'2"		16x36		16x16				26
113	1	1	10'0"	32'- 4"	16x32	16x32	12x18	12x18		4x6	26
114	1	1	10'0"	32'- 4"	16x32	16x32	12x18	12x18		4x6	26
115	1	1	10'0"	32'- 4"	16x32	16x32	12x18	12x18		4x6	26
116	1	1	10'0"	32'- 4"	16x32	16x32	12x16	12x18		4x6	26
117	1	1	10'0"	32'- 4"	16x32	16x32	12x18	12x18		4x6	26
118	1	1	10'0"	32'- 4"	16x32	16x32	12x18	12x18		4x6	26

REGISTER & FLUE RISER SCHEDULE

both the bacteria and the spores, it follows that the use of ozone not only purifies the air, but de-odorizes it as well. Heretofore the artificial production of ozone has been accompanied by the formation of nitrous-oxide and other compounds of nitrogen.

It is claimed by the manufacturers of the apparatus in this school that their construction obviates this, and that the throat irritation and other sources of bodily discomfort are absent in their method, but that instead there is a feeling of exhilaration similar to that experienced after a thunder-shower, and which is due to the same cause—the formation of ozone in the atmosphere by the static electricity of the lightning. It is claimed that there is no perceptible odor present, due to the mechanical formation of ozone by the apparatus, and that the quantity released bears but a minute proportion to the mass of air used for ventilation—roughly about one part in a million of air. Reducing the operating costs of ventilation are very important.

In some cases the loss resulting in discharging vitiated air is so great as to lead to the installation of direct radiation, with no provison for ventilation, where the state laws do not prohibit this. One single very great advantage of the use of ozone is its effect upon bacteria or developing spores which have found lodgment in the inaccessible interiors of ducts. In such cases the ozone has the same effect on the bacteria and the spores as a stream of fire—it literally "burns them up."

It will be noted that all air coming to the fan must first pass the air-purifier unit, and then through the air washer. The air washer performs a double service: It removes all dust, soot, lint and other floating particles, and also maintains any required degree of humidity. The apparatus installed is

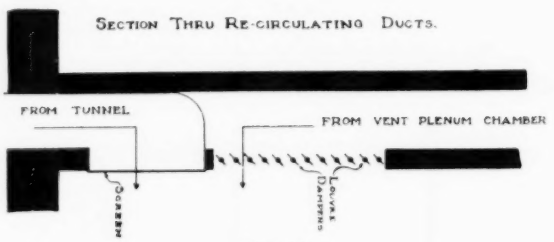


Fig. 13.

equipped with ejector type humidity control. For circulating the spray water there is a 4-inch centrifugal pump, direct connected on the same cast iron base to a 10 h. p., 220-volt, 3-phase, 60-cycle motor.

This apparatus consists of a tank of water, a series of spray heads for vaporizing the water, and a set of eliminator plates for removing excess water entrained in the moving current of air. The eliminator plates are a series of galvanized iron plates of special shape, having small vertical gutters set in at the edges, and having the deflector plates opposite each gutter set at an angle of 60 degrees. The water for forming the spray is used over and over again, and that which has been taken up by the air in its passage is made up by means of a float valve connected to the water supply in the building. The dust and foreign particles taken up by the spray falls back into the tank, and is prevented from again passing up with the water by a strainer placed on the suction pipe to the pump.

(To be Continued.)

During the last few weeks there has been a great rush of German goods to England. Some British ports, in fact, are choked with German imports which cannot be released until proof is obtained that they were contracted for prior to time stated. It is generally felt in British commercial world that the 50 per cent will simply operate to check resumption of trade.

BOILER SALES *and* SERVICE

By Alexander McDougall

"When You Have a Kindness Done,
Pass It On.
'Twas Not Given for You Alone,
Pass It On."

(Continued from Page 309 of the May 14th Issue.)

JUST the other day I lost out because I couldn't understand why a boiler of sufficient capacity fell down on its job, and I had the curiosity to try and find out why. The smoke connection led about 30 ft. under the building through a portion excavated only partially, to the vertical flue. It was rather a dusty, cobwebby exploration but the cause was located; the wire supports had rusted through permitting the pipe to sag, opening a joint about half the area of the flue. When that was put back, it fixed the job and cancelled a boiler order at the same time.

Then there was that peculiar case at the Newsboys' Home. Several charitable friends keep this home going, and it is very much worth while. It was originally a two-story building with a 36-inch, nine-section cast iron boiler in the basement. It was a good job too. But they added a third floor to the building, built a laundry building 75 ft. away, and moved the boiler over there, adding four more sections and four more grate bars. The smoke connection was extended under ground across the court, built of fire brick, and connected to the original chimney, which was of ample area. But they could not raise steam. They concluded that the draft arrangement was bad, and built a steel stack 18 inches in diameter and 50 ft. high. That helped some, but still the heating results were very poor, and the coal bill a heavy drain on the limited treasury.

Some one suggested a new boiler of different type, and the writer went out to look it over. Crossing the courtyard, it was noticed that the base of the steel stack had been subjected to a great deal of heat. A glance at the boiler revealed the reason. Just imagine a 36-inch cast iron boiler with 11 grate bars, and an old man trying to fire it! The rear grates never were properly covered; air short circuited through them, chilling the rear half of the boiler and lowering the rate of combustion; most of the products passed out as the incomplete mixture CO (carbon monoxide); meeting additional oxygen, coupled with the highly heated base of the steel stack, the gas was ignited at that point. The Home really had a gas plant, and not a heating plant at all! Four of the grate bars were removed and fire brick installed in their place, as per Fig. 4. It has been a first-class heating job ever since, and burns about 40 per cent as much coal as formerly.

Excessive grate surface, dampers adjusted too tightly, very deep fire are among several causes of lack of combustion to a complete chemical union of the carbon and oxygen. Carbon monoxide, which is an odorless, explosive gas, passes out of the firebox; as there are frequently air leaks about the base of the chimney, and in the smoke connection from the boiler, the additional oxygen is supplied. If it happens—which it does frequently—that the iron smoke connections are highly heated, all the conditions are present to bring about complete combustion. If such a condition exists, it can be readily detected by the burned appearance of the iron.

I had such a case in hand very recently in a private hospital. They had a battery of boilers, these being designed for burning hard coal. During the temporary heating of

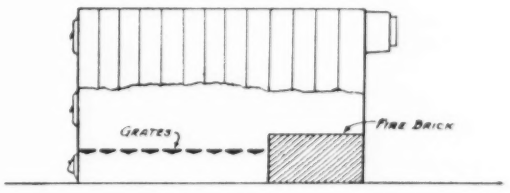


Fig. 4.

the building bituminous coal having a high percentage of volatile matter was used. The boilers were very carelessly handled—which is usual on temporary heating—and a deep fire was carried so that all conditions were very prime to bring about the generation of gas in considerable quantities. This ignited in the loosely fitted smoke connection, and the dampers, which were made of sheet iron of about 20 gauge, were melted so that their shape became as shown in Fig. 5. It can readily be seen that at any position of the dampers the area was always reduced 50 per cent. This condition was discovered by placing a light at the outlet end, and viewing along the smoke pipe by means of a small mirror held in the check draft opening. I might say that this means of examination should always be resorted to, as it frequently reveals stoppages of one kind or another. Cases of this kind stress the importance of studying the details of operation of every boiler, especially where fuel is different from that which it was designed to burn. And in any case, it is preferable to use a heavy cast iron damper, and more especially so when burning bituminous fuel.

Speaking of studying the details of boiler operation, why is it that so large a number of bungalow owners go in for boilers of highly specialized type requiring unusual draft? Such boilers have their place of course—and very important it is too—but that place is not in a bungalow. Perhaps it occurs because the prospective builder of a bungalow is more prone to investigate due to his greater personal interest in the new home. It is curious perhaps, but none the less true, that such owners are usually much more enthusiastic about

the details than those who build more pretentiously. When your opinion is asked on the next bungalow job, advise a boiler with a relatively small amount of heating surface, and as direct a passage from the fire-box to the flue as is practical.

I visited two jobs recently where the boilers had been broken due to the water escaping gradually. In one case it was due to a submerged blow-off which connected directly to the drain under the floor. The blow-off was supplied with a square-head cock, to which was fitted a tee-handle projecting above the floor. The point of contact had worn, so that when last blown off the cock was not fully closed when finishing, although the tee-handle indicated that it was. Sub-

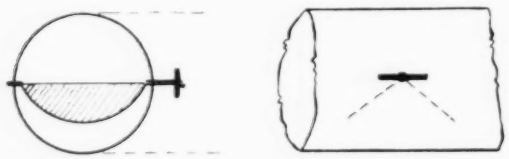


Fig. 5.

merged blow-offs are never to be recommended. The blow-off from a heating boiler (where not taken to a blow-off tank) should always end an inch or two above a floor drain, so that if a leak exists it will be noted.

The other broken boiler was connected to a one-pipe steam job having an air line, the same being connected at the radiator by a thermostatic valve of the "Paul" type. The air line ended at an electric vacuum pump; the discharge from the pump being connected directly to the sewer. Three large radiators standing near store entrances had the valves just "cracked" open. The steam passing through condenser very rapidly until the radiators were filled up to the aperture of the air valves. The surface of the radiators being great, the water arrived at the air valve cool enough to pass the thermostatic element, and was drawn through by the pump and ejected to the sewer. That was the diagnosis I advanced, which the owner held to be preposterous. After considerable fruitless argument we agreed to ship another boiler which he need not pay for if our contention proved to be groundless. When the new boiler was hooked up by the fitter we adjusted the three valves on the large radiators as they had been found when the boiler was broken, raised steam and threw in the switch on the pump. In a short time water began to run into the sewer and the water in the gauge glass on the boiler dropped steadily. After watching the performance about 10 minutes the owner without saying a word walked upstairs and, returning, handed the fitter a check for the boiler. But human nature is a queer thing. Most of us resent having our judgment proved inaccurate. The owner must have felt that sting; at any rate, since I am telling the truth in these reminiscences, I might as well tell you now, that when the owner built an addition we did not get the additional boiler.

Speaking of Paul air valves. We had one of our boilers connected to a one-pipe heating job in a small Episcopal church. A very good grade of automatic air valve was attached to each of 12 radiators in the auditorium. When raising steam, the air being expelled from these, made a very objectionable noise in the subdued quiet of the room. This was corrected by putting on air line valves, and running an air line, with an open end, terminating at the drain in the boiler room.

We had a job in a southern city some time ago and had numerous complaints on the water leaving the boiler. The piping layout, the load, etc., was checked and found to be according to accepted standards. We recommended a thorough surface blow-off, and while this remedied the condition, it did not entirely correct it. Finally we recommended filling the boiler with rain-water. This was done and there has been no recurrence of the difficulty.

I spoke earlier of the use of fusible plugs, and the frequency with which they cause boilers to be broken. Last Christmas morning I was called over to a very large apartment house which had blown all the plugs on a battery of three boilers. It was a two-pipe vacuum job the water being returned to the boilers by the vacuum pump. The strainer on the suction line to the pump had become clogged up, and the boilers therefore failed to get water. No fusible plugs being at hand, and as it would be rather difficult to obtain them, we put in ½-inch cast iron solid plugs, and filled and fired the boilers; after having first cleared the obstruction in the suction line, not one of the forty-eight families having discovered that anything was wrong. This case of fusible plug, however, happened to be one of those fortunate ones which occurred while the fireman was in the room, and could hear them. It was one case where the plugs served a good purpose; very likely the fireman would not have discovered the condition in time to save the boilers.

In order to at least partially guard against a recurrence of this difficulty, a by-pass connection was made from the suction line direct to the boiler, so that in the event of the strainer again becoming obstructed, or the motor operating the pump burn out, some of the water at least would return to the boiler. The connections are shown in Fig. 6. A later test of this very condition was made, by shutting the pump down. It was found that sufficient water returned to the boiler to prevent lowering to the fusible plugs. In this particular job, however, about 90 per cent of all heating surface was above the water line of the boiler. The gate valves shown on the by-pass were left open all the time. They are to permit access to check valve only. When the pump is operating the check on the bypass prevents pulling from boiler.

We are all running into an increasing number of cases of

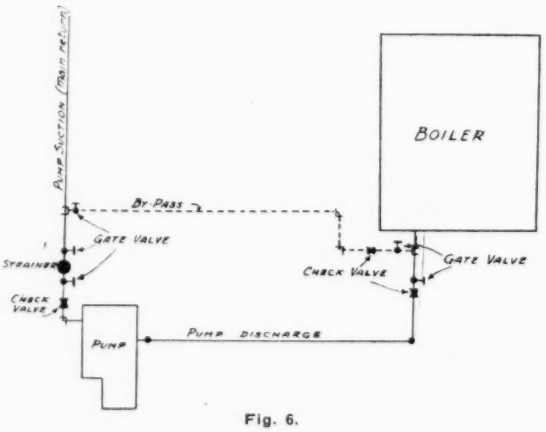


Fig. 6.

draft trouble. Some of them are very difficult to do anything with, especially in cases where the chimney is in a prominent location, and repairs would be very objectionable. I have in mind particularly a very fine stucco finished house where we discovered bad leaks in the flues. The matter being fully explained to the owner, he decided he would rather burn extra fuel every year, than damage his house by breaking into the stucco surface. We recommended his using coke, and his heating results are now very good. Coke may often solve a draft difficulty. It is a very light fuel, the surfaces of which favor the easy passage of air, and besides, pound for pound, it requires less air than coal. My personal belief is that the use of coke will be greatly augmented in the next few years, because of the increasing value of the by-products of its manufacture, and because of the elimination of smoke

and soot in its use. It very nearly approaches hard coal in its heating value per ton in actual use.

We had a very bad case of defective draft not long ago, caused by leaking chimneys on account of improper cementing of tile. As the tiles were put in place without the usual brick partition, and as they also made two offsets, it became impossible to do anything with the boiler flue, as the owner refused to allow a repair either from inside or outside. Changing from a small size of hard coal to medium size coke brought about a slight improvement, but the job was still very wasteful and inefficient. A complete solution was reached by installing a small desk-type of fan with an ex-

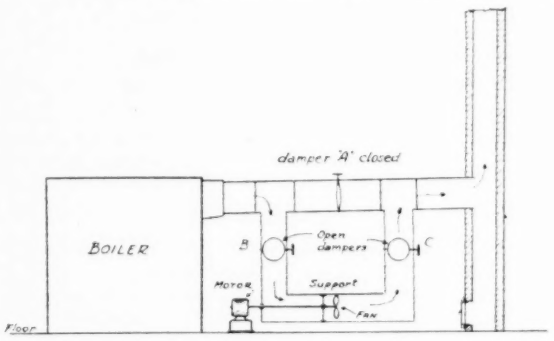


Fig. 7.

tended shaft. The details are shown in Fig. 7. Two tees were inserted in the horizontal smoke connection, both looking down; these were connected by a "U" loop, and the fan placed in the bottom horizontal section. The fan motor was placed outside the smoke passage, so as to be protected from the heat. A small roller bearing support was placed at the fan end to prevent oscillation. Three dampers were placed as at "A," "B" and "C." In the normal operation, with the fan not running damper "A" was opened and "B" and "C" closed. When the draft was poor, or demand for heat increased, "A" was closed and "B" and "C" opened. The illustration shows the latter condition. An interesting detail in connection with this installation is that later a thermostat was installed, which threw on the fan switch and operated the dampers as required, the dampers being weighted to permit this. It might be said in passing that automatic operation of the fan is not practical from the steam pressure. The operation of the switch is then gradual. A snap action is necessary, and the thermostat provides this perfectly. Manufacturers of thermostats are welcome to the idea. The writer believes they can add many thermostat sales to their records by advocating this plan, for the double purpose of correcting defective draft, and regulating the temperature of the house.

Speaking of thermostats, here are two more perfectly good (and new) applications of thermostats which are also sales stimulators, and to which you are also entirely welcome. Oh never mind don't feel under obligations at all (unless you happen to know where a fellow can find some H and H)! Many florists with medium-size houses, do all their winter growing without hiring any help. This necessitates the florist (or his wife) getting up at frequent intervals to attend to the fire. They set their alarm clock variously at from two hours to four-hour intervals, depending on their estimate of the state of the weather and the fire. Frequently of course, they get up at much too short intervals, and then at times they err the other way, owing to sudden drop in outside temperature. This could all be done much more comfortably and efficiently if thermostats were installed to regulate the temperature and in addition (here is the idea that wins the hand painted mustache cup) *ring an alarm in the bed room if the temperature falls below or above the required range.* This would, of course, require an additional thermostat, but it would mean many additional hours of sleep for the florists. I can imagine that the florist, under the present method, doesn't "Say it with flowers" when he finds he has broken up his rest needlessly.

The other idea refers to all heating boilers, and has reference to the very frequently met with high stack temperature. Under the present method of damper regulation, the fire sometimes becomes very hot for 30 minutes, or even more, before pressure is raised sufficiently, or the thermostat operates, to close the dampers. In the meantime the stack temperature becomes wastefully high. The scheme, the writer has in mind, is an expansion element attached to the smoke pipe and operating a check draft, either directly or by means of an auxiliary motor. I believe it would be a paying investment for the owners of boilers where this condition exists. It does not occur in every plant of course, only in those having unusual draft, boilers with relatively small heating surface, very volatile or very porous fuel, etc.

Speaking of porous fuel, I know a florist who had great difficulty in procuring fuel two years ago. One carload which he obtained proved to be of extremely poor grade, almost completely slacked, and when burned formed a dense clinker. It was more than 40 per cent ash too. The florist was plentifully supplied with labor fortunately, and was able to keep his temperatures up in the house. He told me of his difficulties and we determined to do some experimenting. We tried various draft intensities, varying depths of fire-bed, etc. Just a short distance from his home was a sawmill, with great piles of sawdust all about the place. We hit upon the plan of mixing in some of this with the slack coal, first wetting the sawdust. It had a surprising result. We mixed in about 50 per cent sawdust and 50 per cent slack coal. We carried a fuel depth of 10-inch (double the former depth, and had very much improved combustion, with lessened draft and *completely eliminated the clinker.* The fire burned at an even rate and with very little smoke. The effect of the sawdust was to leave open, porous spaces through the coked mass of fuel. The florist now buys this low-grade, slack coal all the time, and is rapidly reducing the big mounds of sawdust on his neighbor's sawmill lot.

(To be Continued.)

Loss to the government in operation of the railroads under federal control will be about $1,200,000,000, or $300,000,000 more than estimated by ex-Director General Hines, according to an estimate issued by Director General Davis. The director general made his estimate in the course of a report to Chairman Good of the House Appropriations Committee, on the progress made by the railroad administration in liquidating claims arising out of federal control.

Unemployment caused a decrease in deposits in the United States Postal Savings System during the month of April, the Postoffice Department announced last week. The total deposits on May 1 were $150,100,000 approximately $10,000,000 less than on April 1. At the large industrial centers, where there is considerable unemployment or wages have been reduced," the department states, "instead of the usual increase in deposits, there have been withdrawals to meet the living expenses of depositors."

A rift in the cloud of business depression, hovering over Europe was seen in England and Italy during April by American economic observers, according to the monthly summary of conditions issued by the Bureau of Foreign and Domestic Commerce. In other European countries, however, and in South America, with the exception of Peru, a continuation of the general industrial stagnation was reported. In the Far East, on the other hand, considerable financial and commercial activity was noted.

BASIS *for* STANDARDS *for* ADOPTION *of* PLUMBING CODES—PART VI

The Principles Underlying Sanitary Science and Sanitation Are the Same Everywhere and Need be Standardized—Here Are Suggestions for the Foundation of Codes—Your Constructive Criticisms and Recommendations Are Cordially Invited

By Wm. C. Groeniger

Consulting Sanitary Engineer, President, American Society of Sanitary Engineering

(Continued from Page 358 in the May 21st Issue.)

Sec. 138. Number of Fixtures for Workshops, Factories and Mercantile Establishments.—Where a water supply and sewerage system are available to any factory, workshop or mercantile establishment wherein males and females are employed, the owner, or person having charge of the building shall provide in each establishment on the same floor or the floor immediately below the floor where such employes work, suitable and separate toilet and dressing rooms and water closets for each sex, for the exclusive use of such employes, in the following proportion:

One (1) water closet to each twenty (20) females or less.

One (1) water closet to each thirty (30) males or less.

One (1) urinal to each twenty (20) males or less.

One (1) lavatory to each twenty (20) employes or less.

One (1) drinking fountain to each fifty (50) employes or less.

One (1) shower bath to each seventy-five (75) employes or less. No toilet or dressing room or water closet shall be placed in the basement or cellar unless persons are actually and regularly employed therein and unless such basement or cellar is properly ventilated.

Sec. 139. Toilet Rooms in Connection With Bar Rooms.—(a.) Size. Ample space for location of fixtures and with sufficient space to allow free passage when fixtures are in use.

(b.) Construction. Room to have all outside walls of brick and inside walls of brick, plastered stud or of plastered expanded metal lath.

(c.) Location. To be immediately continuous to bar-room; door to open directly thereinto.

(d.) Heat. To be properly heated.

(e.) Light and Ventilation. By window into space open from ground to sky, or by a skylight neither being less than two feet in the clear in any dimension, and containing not less than four (4) square feet in the clear.

Larger windows or skylights than these are preferred, and it is recommended that as much natural light and ventilation be provided as is reasonably possible.

Natural or artificial light sufficient to make all parts of the room plainly visible shall be provided.

(f.) Wood. No exposed woodwork other than door and windows with their frames and trim.

(g.) Cove. A cove or rounded corner between floors and walls is recommended.

(h.) Walls. White tile completely around room, except back of stall urinals to height of at least four (4) feet, and either hard finished plaster or metal ceiling plates above, either to be painted white or light color in gloss finish.

(i.) Ceiling. Same as upper part of walls.

(j.) Floors. Non-absorbent, indestructible, waterproof material.

(k.) Partitions. Water closet partitions to be marble strongly supported, and should be raised above the floor.

Fixtures.

(l.) Wash basins. Located in bar-room, where it can be watched by bartender.

(m.) Urinals. One or more, as may be determined to be necessary, not less than twenty-four (24) inches wide, white glazed, porcelain, stall type, set with drip receptor, below the floor surface so that floor will drain into same. Three (3) inch trap and waste. Push button flush valve or automatic tank.

(n.) Water Closets. One or more porcelain bowl, seat action, wood or vitreous tank; crescent-shaped white pyralin covered or baked enamel wood seat. If only one closet, it may be locked, provided key with large tag is kept in plain sight and sign on closet enclosure door directs customer to ask bartender for same. Water closet enclosures without doors are recommended.

Sec. 140. Toilet Room Floors.—All toilet rooms and water closet compartments in public, semi-public and quasi-public buildings shall have a waterproof and base made of non-absorbent, indestructible waterproof material, viz.: Asphalt, glass, marble, Portland cement, vitrified or glazed tile or terrazo, or monolithic composition. Base shall be made not less than six (6) inches high, and shall have a sanitary cove at the floor level.

Where existing toilet room floors are found to be in an insanitary condition, they shall be changed to conform to the above requirements within thirty (30) days after written notice thereof is given by the Board of Health.

Sec. 141. Toilet Room Doors and Partitions.—No room containing water closets or urinals shall be less than seven (7) feet high.

Where toilet rooms for males and females are adjacent to each other, they shall be separated by sound-proof partitions extending to the ceiling and the entrances shall be screened and the traveling distance between them shall be not less than twenty (20) feet.

Each individual water closet within such compartments shall be separately enclosed, except that in schools and penal institutions, doors may be omitted from the stalls.

Sec. 142. Toilet Room Window Area.—The proportion of glass surface in each toilet room shall be not less than one (1(sq. ft. of glass to each ten (10) sq. ft. of floor area.

Sec. 143. Outside Water Closets.—A water closet shall not be installed on an open porch or like place. Outside water closets may be installed only for buildings erected prior to the adoption of these regulations, and only when these buildings remain on the same site and are not altered or changed.

Sec. 144. Sanitary Conveniences in Buildings Under Construction.—Where any building is in the course of construction or is being remodeled, the owner or agent shall maintain a suitable and sanitary water closet in or convenient to such building, which shall be accessible to employes on the building at all times, from the completion of the grading of the cellar until a permanent water closet is established in the building.

TITLE VIII.

Ventilating of Rooms and Fixtures.

Sec. 145. Size and Maximum Length of Ventilating Pipes.—In the following, the unit of a ventilating pipe for a single water closet pedestal urinal, urinal bowl, slop hopper or sink, and to each three feet of urinal trough or gutter shall be a two (2) inch pipe.

Size of Pipe	Maximum Developed Length in feet Mains	Branch	Number of Fixtures Vented Main Vertical Part
2 inch	40	1	1
3 inch	100	3	6
4 inch	150	6	12
5 inch	200	10	20
6 inch	250	16	32
7 inch	300	23	46
8 inch	350	32	64
9 inch	400	42	84
10 inch	450	56	112
11 inch	500	72	114
12 inch	550	90	180

The dimensions given refer to the inside diameter of pipe. Where the number of fixtures exceeds the limit of the tables, sizes and length shall be increased in corresponding ratio.

Sec. 146. Location of Fixtures.—No trapped plumbing fixtures shall be located in any room or apartment which does not contain a window placed in an external wall of the building or is not provided with a system of ventilation.

Compartments containing not more than four (4) water closets or their equivalent shall be located in an apartment containing windows placed in the external walls of the building or shall be provided with a mechanical means of ventilation which will change the air at a normal temperature at least six (6) times per hour.

Compartments containing more than four water closets or their equivalent, shall be located either in an apartment containing windows and provided with a gravity or mechanical system of ventilation which will change the air at normal temperature not less than six (6) times per hour; or, may be placed in compartment without windows in the external wall of the building, providing a mechanical system of ventilation is installed which will change the air at normal temperature not less than six (6) times per hour.

Sec. 147. Ventilating Pipe—How Connected.—Ventilation pipes from fixtures and toilet rooms shall be separate and distinct and have no connection whatever with the other ventilating ducts in the building. They shall be connected to a constantly heated chimney or flue above the highest opening in said flue, or be carried up to at least three (3) feet above the roof and capped with ventilator.

Sec. 148. Ventilation Through Heated Flues.—Where local vents are connected with a chimney or heated flue, the area of the main vent so connected shall not exceed one-tenth (1/10) of the area of the chimney or flue carrying smoke or the products of combustion connected therewith.

Sec. 149. Ventilating Pipes—Mechanical Control.—Where no heated flue of sufficient size is obtainable and the main vent is larger than six (6) inches, a suction fan or blower shall be employed to insure a constant flow of air during the time that the fixtures so vented are in use.

Sec. 150. Ventilating Pipes—Size of Opening.—If the ventilating opening of such duct, flue or pipe is protected by a register face or screen, the opening shall not be less than the required area of the ventilating pipes.

Sec. 151. Ventilation of Bake Shops.—All bakeries shall be provided with such air-shafts, windows or ventilating pipes as the Inspector directs. No cellar or basement shall be used as a bakery.

Sec. 152. Ventilation of Garages.—All garages in which automobiles are housed or stored, shall be provided with means for obtaining proper ventilation and fresh air supply.

The ventilation provided shall change the air in a closed garage with a frequency that will prevent the accumulation of poisonous gases to a point considered dangerous.

Section. 153. Air—Minimum Amount Per Capita Under Varying Conditions.

	Cu. Ft. per Hour
Hospitals, Medical and Surgical	3,000
Hospitals, Epidemic and Contagious	6,000
Theaters, low ceiling	2,100
Theaters, lofty ceiling	1,500
Prisons	1,800
Workshops	1,800
Meeting Halls	1,500
High Schools	1,800
Grammar Grade Schools	1,500
Primary Grade Schools	1,200

Sec. 154. Ventilating Rooms Containing Contagious and Infectious Diseases.—Ventilation from each room occupied by patients with contagious or infectious diseases shall have no connection with the other ducts in the building.

Sec. 155. Air Pure.—Air to be considered pure shall contain not more than three (3) or four (4) parts of carbon dioxide in ten thousand (10,000).

Sec. 156. Air Safe.—Air to be considered safe, shall contain not more than six (6) or eight (8) parts of carbon dioxide in each ten thousand (10,000).

Sec. 157. Air Unsafe.—Air containing twelve (12) or more parts carbon dioxide in ten thousand (10,000) is dangerous and shall be considered unsafe.

TITLE IX.

Soil, Waste, Vent and Back Vent Pipes.

Sec. 158. Material to be Used.—All main and branch soil, waste, vent and back vent pipes shall be of iron, lead, brass or copper, except that all vent or back vent pipes underground shall be of cast iron.

Sec. 159. Soil Pipe Stacks.—Every building in which water closets are installed, shall have a soil pipe stack or stacks extending full size through the roof. A three (3) inch soil pipe stack will be permitted where the numbers of fixtures connecting therewith do not exceed the equivalent of three (3) water closets.

Sec. 160. Waste Pipe Stacks.—In order to avoid stoppage, a waste pipe stack shall be as direct as possible and free from sharp angles and only as large as is absolutely required in the foregoing table of sizes.

A main waste pipe stack in buildings, where no soil pipe stack is installed, shall be carried full size and increased at the roof as prescribed for roof terminals.

Sec. 161. Fixture Equivalent.—Twenty (20) sq. ft. of roof or yard area in horizontal projection counts as one fixture.

Three (3) ft. of urinal trough or wash sink counts as one fixture. One (1) bath, basin, laundry tub, or sink or smaller fixture counts as one fixture.

One (1) pedestal urinal or slop hopper sink counts as two fixtures.

One (1) floor drain counts as two fixtures.

One (1) water closet counts as four fixtures.

Sec. 162. Soil and Waste Pipe Stacks—Length of.—The length of the main of the soil or waste pipe stack, irrespective of the number of fixtures connected therewith, measured from

its heel to the topmost connection, must not exceed the following:

Size of Pipe	Maximum developed length in ft. Branches	Main
1¼ inches	15	45
1½ inches	20	60
2 inches	25	75
2½ inches	35	105
3 inches	50	150
4 inches	75	225
5 inches	100	300
6 inches	125	375
7 inches	150	450
8 inches	175	525
9 inches	200	600
10 inches	225	675
11 inches	250	750
12 inches	275	825

Sec. 163. Soil and Waste Pipe Stacks.—Adjacent fixtures. Where bathrooms or water closets or other fixtures are located on opposite sides of a wall or partition or directly adjacent to each other within the prescribed distance, such fixtures may have a common soil or waste pipe and vent stack, provided the vent is a continuation of the waste and is perpendicular or inclines at an angle not greater than forty-five (45) degrees from vertical.

Sec. 164. Soil and Waste Pipe Stacks, Cleanouts.—Cleanouts shall be provided at the foot of all vertical lines of soil and waste pipe and at the end of each horizontal line.

Any vertical soil, waste or vent pipe, having an open end readily accessible from the roof and without change of direction in its entire length, shall not be required to be provided with a cleanout other than at its base.

Sec. 165. Soil and Waste Pipe Stacks—Fixture Connections.—All soil and waste pipe stacks and branches shall be provided with correctly faced inlets for all fixture connections.

Sec. 166. Branch Soil and Waste Extension.—Any vertical branch rising more than ten (10) ft., or any lateral branch running more than twenty-five (25) ft. from the main house drain or main soil or waste stack, shall be continued full size above the roof in the same manner as required for main soil pipes, or may be returned full size to the main soil or waste vent.

Sec. 167. Changing Soil and Vent Pipes.—In existing buildings where the soil or waste pipe is not extended undiminished above the roof, or where there is a sheet metal soil or waste vent pipe and the style or location of the fixture is changed, or replaced with a new one, a soil or waste vent pipe of a size and of the material herein required shall be run.

Sec. 168. Prohibited Connections.—In no case shall any fixture connection, carrying water above 140 degrees, be made to the lead bend or branch of a water closet or similar fixture. Nor shall any waste connection be made to the bend radius of such fixture connections.

No soil or waste vent, circuit or loop vent above the highest installed fixture on such branch, or back vent, shall be used as a soil or waste pipe.

Sec. 169. Soil and Waste Pipe Protected.—Soil and waste pipe stacks and branches will only be permitted on the outside of the building, when provision can be made to adequately protect them from frost, and then only upon written approval.

Sec. 170. Roof Extensions.—All soil and waste stacks shall be extended not less than the full calibre at least two (2) ft. above the room and at least five (5) ft. when such roof is used for other purposes than weather covering.

In no case shall a vent pipe through the roof be less than four (4) inches. Change in diameter shall be made by long increaser, at least one (1) ft. below roof, and a test opening should be located at this point, unless there is permanent access to the roof and the top of the vent pipe is accessible.

Sec. 171. Roof Joints.—The joint at the roof shall be made water-tight by the use of a proper sheet copper or lead plate and with a sleeve not less than six (6) inches long, made to fit the pipe tightly, where the face of the hub is not flush with the roof. Plate shall be not less than one (1) ft. six (6) inches square.

Sec. 172. Terminals.—The roof terminals of all vent pipes shall be at least three (3) ft. above any door, window, scuttle or air shaft, and located at a distance not less than twelve (12) ft. therefrom.

Sec. 173. Terminals Adjoining High Buildings.—No soil, waste or vent pipe extension of any new or existing building shall be run or placed on the outside of a wall, but shall be carried up in the inside to the roof.

In the event that a new building is built higher than an existing building, the owner of the new building shall not locate windows within twelve (12) ft. of any existing vent stack on the lower building unless the owner of such new building shall defray the expenses of, or shall himself make such alteration to conform with Section 171 of this title.

It shall be the duty of the owner of the lower or existing building to make such alteration therein upon the receipt in advance of money or security therefor, sufficient for the purpose, from the owner of the new or higher building or to permit, at the election of the owner of the new or higher building, the making of such alteration by the owner of said new or higher building.

(To be Continued.)

May 30 and 31, June 1 and 2, 1921.—The thirty-second annual meeting of the Heating and Piping Contractors' National Association, in Boston, Mass. Headquarters and meeting place will be at the Hotel Brunswick.

June 2 and 3, 1921.—The quarterly meeting of the National Association of Brass Manufacturers, at Iroquois Hotel, Buffalo, N. Y.

June 3 and 4, 1921.—The annual convention of the Alabama State Association of Master Plumbers, at Mobile, Ala.

June 6, 7 and 8, 1921.—The annual convention of the Canadian Society of Domestic Sanitary and Heating Engineers, in Quebec City, Quebec.

June 7, 8 and 9, 1921.—The 39th annual convention of the National Association of Master Plumbers, at New Orleans, La., with headquarters at Hotel Grunewald.

June 8, 1921.—The summer meeting of the Eastern Supply Association, in Washington, D. C., with headquarters at the New Willard Hotel.

June 14, 15, 16 and 17, 1921.—The semi-annual meeting of the American Society of Heating and Ventilating Engineers, at Cleveland, Ohio.

June 15, 1921.—Midsummer meeting of the Central Supply Association, at the Hotel Sherman, in Chicago.

June 22, 23 and 24, 1921.—The twelfth annual convention of the National District Heating Association, at Cedar Point, O., with headquarters at the Breakers Hotel.

September 6, 7 and 8, 1921.—The annual meeting of the American Society of Sanitary Engineering, in Cincinnati, O., with headquarters at Hotel Gibson.

Secretary of the Treasury Mellon said last week that he believes that the economic business pendulum is ready for an upward swing to prosperity, and indicated that the high bank rate period has ended.

QUESTIONS & ANSWERS

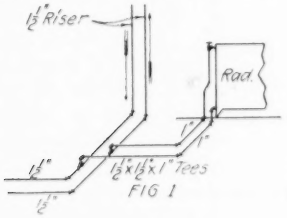
This department is a clearing house for ideas and is open to every reader of "Domestic Engineering." Problems sent in are replied to at the earliest possible moment by "Domestic Engineering," and this department can be made more valuable if readers themselves will help the man who needs assistance. Read the questions and answers. If you have had similar problems, or know from experience how the faults can be remedied, do not hesitate to send in your comment or criticism. It will be some satisfaction to you to know that you have helped a fellow craftman and a pleasure for us to pass on the data. "Every man owes some of his time to the upbuilding of the profession to which he belongs."

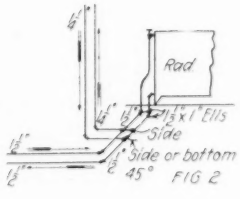
WHERE THE RISERS ROB THE CIRCULATION TO THE RADIATOR ON FIRST FLOOR.

Editor "Domestic Engineering":—I am sending you a sketch of a job where I added a 60-foot, one-column, 38-inch radiator to a hot water job in order to heat a back kitchen. Now this particular radiator will not heat unless they make a fresh or very hot fire, and it seems inclined to circulate the wrong way, that is, it flows to the upper radiators, and on its return it tries to go into this radiator through the return. Kindly advise me in this matter through your Questions and Answers Department and also please let me know if a hot water job can be changed to a steam job by adding a gauge glass on the boiler and air valves on radiators.

Pennsylvania. J. D. F.

Fig. 1 illustrates the sketch submitted with the above letter. It is plain that correspondent's trouble is due to the fact that as the piping is now installed the returning circulation through the 1½-inch return riser is moving at so great a velocity that when it meets with the resistance of the cooler and more dense water in the horizontal return, it tries to move through the return of the kitchen radiator. In this manner it blocks the circulation through this radiator except at such times when the water in the entire system is heated to a high temperature.





Note that both flow and return branches to the kitchen or first floor radiator are taken from the top of the main flow and return. The flow connection taken from the top is correct, but the return should enter the side or bottom of the main return. Owing to the fact that the risers are made the full size of the main and return (1½ inches), there is a tendency for the risers to rob the circulation to the first floor radiator. This can be remedied in a measure by making the pipes (flow and return) between the tees serving the first floor connections and the elbows at the base of the risers 1¼ inches in size. The tees will then be 1½x1¼x1 inch, and the elbows 1½x1¼ inches. The risers can remain 1½ inches in size.

Fig. 2 illustrates the work as it should be installed. The horizontal flow and return mains are taken full size to the point where the first floor radiator is connected. Here they are reduced to 1 inch, 1½x1-inch elbows being used. A 1¼-inch flow riser to supply the radiators on the second and third floors is taken from the side of the 1½-inch main, and the 1¼-inch return riser is connected into the side or bottom of the 1½-inch return main.

A hot water boiler cannot well be used for steam on account of the fact that the usual type of hot water boiler has a very shallow dome, and there is not sufficient steam separating space in it. Some types of round boilers are made alike excepting the dome section. A new steam dome can be procured for a boiler of this type for use on the hot water boiler. The return piping pitching down toward the boiler is all right to use for steam, but being a dry return it will be necessary to use a trap on the return end of each radiator or to trap the return connection before connecting into the dry return. The flow piping should be regarded so that it will pitch down from the boiler. The tees supplying branches should be changed to eccentric fittings to allow for perfect drainage. The end of the supply main can be dripped to a wet return or it can drip through a loop seal into the dry return. This seal if used should be about 6 ft. deep. It would be much better to take down the hot water piping, especially the flow pipes, and erect the system as for a steam job.

LAYING THREE-INCH WATER MAINS UNDER A RIVER.

Editor "Domestic Engineering":—We have a proposition as follows: We wish to lay 3-inch galvanized pipe, screw joints, across a river, 100 ft. wide, having water 3 ft. deep in the middle at low water and 18 inches deep for several feet out from each bank. There is a sand bottom and dirt banks, sloping back at about a 45-degree angle. The current is eight miles per hour.

We wish to get the pipe deep enough to be safe from freezing. Do we have to put the pipe under the sand in the bottom to keep drift from taking it out, and how could the pipe be laid most economically?

Kansas. P. H. N.

We believe a main laid 3 ft. to the foot deep in your country should be safe below frost, if the ground is not packed tightly such as under a road.

We do not think the pipe will freeze under 30 inches of water, or perhaps less in your case as there is a swift current. We advise trenching under water, 30 inches deep, at low tide, from surface of water to pipe line.

We also advise trenching at least 1 ft. below bottom at deepest part to prevent the current from shifting the line. In fact, it may be advisable to dump about a ton of concrete around the line in mid stream just for an anchor. The banks will hold the ends. We believe that this will make a secure and permanent installation. You can use a couple of rafts, anchored, to work from, shifting the anchorage with row boats or otherwise, as the work goes on. Perhaps you can anchor the rafts with hawsers from trees on the opposite banks, and play out or haul in the hawsers as required to shift the moorings.

The pipe line may be screwed together length by length on the rafts, one raft at each side of the line. Let the line down between the rafts the space being perhaps 9 inches between rafts. The rafts may be spiked together at both ends with 2x6 timbers, leaving the working slit between them to drop the line through.

It may be necessary to have the slit 18 inches wide if the sand fills up the trench before pipe can be laid. Then you can have a gang keeping the trench clear while the plumbers are laying the line.

In a general way, we think, the above is about as good a plan as you can adopt. Local conditions may, of course, require more change in plan, but your mechanical knowledge should be able to overcome them. We wish you success.

REMEDY FOR DEFECTIVE ARRANGEMENT OF DOMESTIC HOT WATER SUPPLY SYSTEM.

Editor "Domestic Engineering":—Kindly answer through the Questions and Answers Department of your valuable magazine the following question, as I am uncertain about the matter myself:

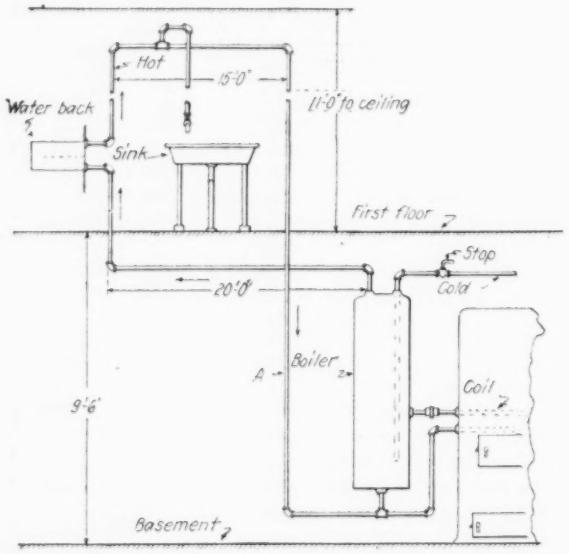


Fig. 1.

Will the arrangement shown in Fig. 1, herewith, work satisfactorily or not? Kindly give your reasons.

Missouri. M. L.

No, the system as arranged in your sketch, Fig. 1, will not work satisfactorily. There are several reasons why. One is that the floor outlet from furnace coil is dead level, going straight into the side of the range boiler. This level connection will cause the coil to produce steam, which will create thumping or rattling noises as the steam enters the boiler and mixes with the cold water therein.

The remedy for this is to raise the flow pipe from coil so that it may enter the range boiler at a higher point.

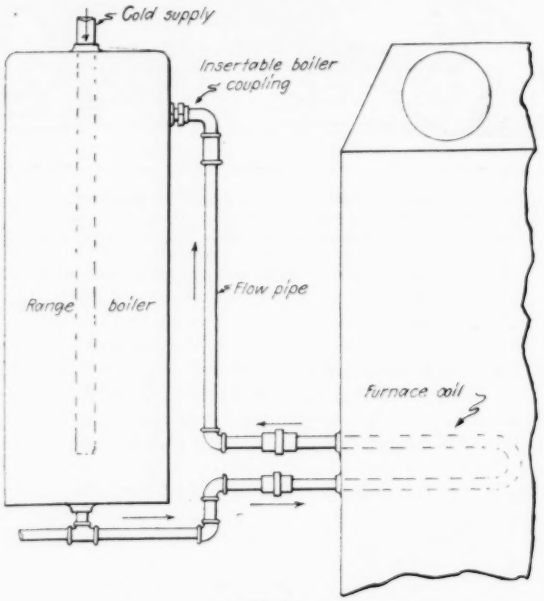


Fig. 2.

Fig. 2 shows how this may be done. Get a boring tool such as you see advertised frequently in "Domestic Engineering"; also an insertable boiler coupling. Bore a hole in boiler shell, say 4 inches below the seam. Insert the coupling according to instructions. Then connect up the flow pipe

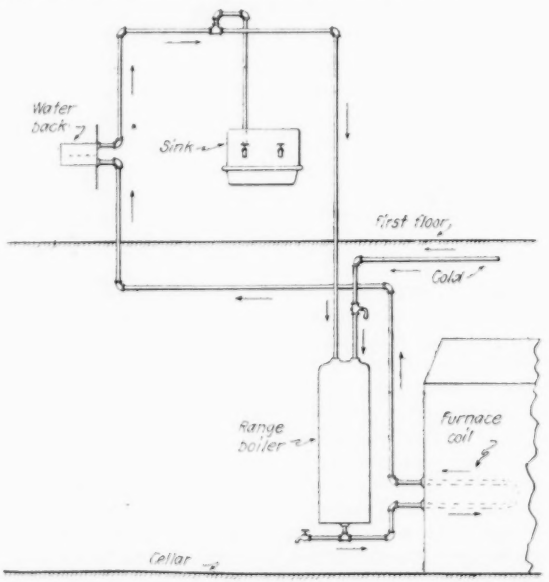


Fig. 3.

from furnace coil, as shown in Fig. 2. That should prevent the aforesaid noise, by producing a rapid circulation between coil and boiler.

Another reason and one which cannot be remedied so easily, is the fact that the water back is so much higher than the range boiler. However, you have the benefit of 15 ft. of

¾-inch pipe up at the kitchen ceiling to help this unnatural circulation.

If you remedy the furnace coil connection as shown in Fig. 2, we believe that there will be a good circulation when the furnace fire is on. The range water back then is just a booster, and then boiler should heat all the way to the bottom.

But it will be different when the furnace fire is out. Then the circulation will be poor. There will be difficulty in heating the range boiler. But hot water should be obtained at kitchen sink although not in great volume.

We are inclined to favor the arrangement shown in Fig. 3, if the furnace coil and circulating piping can be made 1 inch instead of ¾ inch. We feel that it will produce better results. It gives a better chance to heat the top of the boiler and so store up hotter water even if smaller in quantity.

If you prefer to hold to the general arrangement shown in Fig. 1—that is, if the installation is already in we advise connecting pipe A to the side outlet of boiler after changing the coil flow pipe, as shown in Fig. 2.

The Salesman's Corner

"'TIS BETTER TO INSPIRE TEN MEN THAN TO DO TEN MEN'S WORK."

By The National Trade Extension Bureau.

The successful man is he who can inspire ten men to work rather than the man who, himself, tries to do ten men's work. A great many salesmen of plumbing and heating materials are not as successful as they might be, because they fail to recognize the dividing line that is established by the above statement.

Real service to the house and to the customer, does not mean that a salesman should act as a solicitor, collector, or order-taker for his customer. Real service rises out of the faculty for inspiring the customer to properly do these things for himself.

Charlie Schwab once said, "I've never had men work for me; all our men work with me." This precept of Mr. Schwab's is worthy of adoption by the plumbing and heating salesman. More thought and energy should be directed towards encouraging and stimulating interest and action on the part of the plumbing and heating contractor in advertising, display and selling.

We once knew a salesman who was credited with being the hardest worker in his territory. Yet his sales trailed behind all the others in his line. He was the type who would make plans and specifications for his customers, figure the estimate, close the sale, write the contract, guarantee the job, write out the orders, superintend the work, and collect the money. He did all of ten men's work.

Traveling the same territory there was a young salesman who wore better clothes, stopped at better hotels, and who apparently, took life easy. However, he seemed to have all of the best accounts and was gradually taking business away from his more hard working competitor.

This second young man had studied and solved the problem of getting his customers to adopt ideas and plans that would enable them to build business. He cared little as to insuring their personal action in buying goods of him. Rather, he trusted them implicity, and this begets faithfulness. He encouraged the contractor to work with him, to feel a oneness of purpose, so that the word "we" meant all it stands for. Thus he became a part of the directing head of each of his customers' business, and not a worker. He inspired rather than performed. He had ten men working for him rather than himself doing ten men's work. He made himself a salesman of the truly "executive" sort—a "boss" salesman. The other fellow stuck in the "journeyman" class.

Inspiration is a great thing. It is the source of the morale that wins the battle. This letter is intended to inspire you to inspire others. You cannot expect your customers to become enthusiastic about a "Bath In Every Home" campaign unless you, too, are enthusiastic. By encouraging ten customers to take advantage of T. E. B. suggestions for this campaign and those to follow, you will sell ten times as much as you will if only one of your customers follows up these campaigns.

To do this you must yourself know the details of the successful handling of such drives for business. You must know the methods and the results of advertising, show window display, sales letters, and how to sell your customer the idea of working such sales plans.

You must be prepared to convince him that he ought not to expect a great volume of immediate results from such activities, but show him that constant and persistent effort is the thing that inevitably produces profitable results.

Point out to your trade that advertising is like firing a boiler. As long as you put a sufficient quantity of fuel under the boiler you will have plenty of steam to turn the mill. If you neglect the firing the plant will automatically shut down.

However, this is true not only of advertising, but equally true of selling. It is just as true in the application of the ideas outlined in this letter. Personally you are going to obtain results in proportion equal to the amount of time you spend in stoking the fires. Put the proper fuel into the fire box, and properly tend the firing, and your customer is bound to get up steam.

In conclusion, let us again emphasize the importance of encouraging your trade to follow up the "Bath In Every Home" campaign. This campaign need not stop May 21st but should continue until all of the seventeen and one-half million homes now in need of modern plumbing have been fully equipped.

Also, remember that the fellow who will surely succeed is the one who does not become discouraged if he fails to interest his customer in campaigns of this character, the first, second, or even third time he tries.

The next campaign in line is the "Bath Every Day" campaign, which will be announced in the May Service Bulletin. Watch for your copy, absorb the contents and act. We are supplying the fuel and we know you will keep steam on the boiler.

"1921 will reward action."

German competition in England is already being felt, says copyright Herald dispatch. At recent exhibition of foreign goods, in London, German articles predominated, and it was shown prices as compared with British were 60 per cent less in electrical specialties, 50 per cent in fabric gloves, 55 per cent in gas mantles, 55 per cent in scientific glassware; 65 per cent in domestic glassware; 70 per cent in ordinary thermometers and talking machines; 72 per cent in metal musical instruments, 78 per cent in violins; 45 per cent in pianos; 35 per cent in surgical instruments and 50 per cent in scientific instruments and appliances.

The Commercial Association of Sao Paulo, Brazil, has disapproved of a commercial moratorium for six months, as provided for in a bill presented to the Senate last week by Senator Frontin. At a meeting of the commercial bodies of Rio de Janeiro all the speakers were opposed to the idea of a moratorium, but favored a foreign loan. The meeting approved a proposal to solicit from the Government concessions in warehouse charges and internal banking regulations and assistance in production.

WASHINGTON MASTER PLUMBERS MEET *in* SPOKANE

Two-Day Convention Has Many Interesting Features; "Take a Bath Every Day" Campaign and Trade Extension Bureau Endorsed; J. E. McCormack Elected President

THE twenty-sixth annual convention of the Washington State Master Plumbers' Association was held in Spokane, Wash., on Friday and Saturday, May 13th and 14th, at the Davenport Hotel.

The meetings were well attended, and were featured with addresses by J. C. Greenberg, of the National Trade Extension Bureau, and National Director Harry L. Hanson, of Butte, Mont. The "Take a Bath Every Day" campaign now being conducted by "Domestic Engineering," received the endorsement of the Association, as well as the National Trade Extension Bureau.

Friday Morning Session.

The convention was called to order by President P. J. Lavan at 10 o'clock Friday morning. Following the opening address, J. E. McCormack, president of the Spokane Association, welcomed the delegates to the city. Mayor Charles A. Fleming extended greetings and hospitality to the visiting members. After the response by the Association, National Director Harry L. Hanson, of Butte, Mont., spoke at some length on the work being accomplished by the National Association and earnestly requested that all lend co-operation in securing a greater portion of public confidence and esteem. "To my mind," he said, "the one big thing that is going to build up the plumbing business is the National Trade Extension Bureau. It is the most wonderful and interesting subject I know of."

Committees Appointed.

The following committees were appointed:

Credentials: E. H. Norton, Seattle; A. J. Blythe, Bellingham; A. M. Goddard, Tacoma.

Resolutions: G. H. Sutherland, Walla Walla; Ben Olsen, Tacoma; J. E. McCormack, Spokane.

Auditing: J. J. Ward, Seattle; G. A. Weber, Tacoma; L. L. Lent, Bremerton.

Press: James Smyth, Spokane; W. F. Eckart, Seattle; Harold Dupar, Seattle.

Sergeant-at-arms: W. M. Lucas, Spokane.

Friday Afternoon Session.

The report of the Credentials Committee was the first order of business followed by the reading of the minutes of the last convention, and communications. President P. J. Lavan read his report in which he thanked the members for their sincere co-operation and reviewed the work of the past year touching on the excellent financial condition of the Association. He also commented on the membership and recommended a membership campaign, giving the incoming president power to select a field agent for such work. The work of the legislative committee in attempting to pass a state plumbing code was outlined by the president, and in concluding he thanked the members for the harmonious assistance rendered during his term of office.

Secretary B. M. Richards, of Everett, then read his report, and commented on the activities of the past year, reporting the work accomplished in the two meetings of the executive board.

National Director Harry L. Hanson on Loyalty and Co-operation.

"The need is uppermost for our greatest loyalty to our chosen calling," said Mr. Hanson, in resuming his talk. "I claim and contend that no profession is equal to the plumbing business and none is of greater service to humanity. The public does not understand the value of sanitation as worked out by the plumbers of the nation, nor does it appreciate the city ordinances guarding public health which has been fostered and put in effect by us."

He called attention to the need of co-operation with jobbers and journeymen and also touched on the work of the State College of Ames, Iowa, its sanitary engineering course for boys, the Dunwoody Institute, Minneapolis, the work it is doing, and urged that a state institution along these lines be maintained in Washington. In concluding he urged the members to read their trade papers and to keep them on file for their educational value.

Delegates and Guests attending the Twenty-Sixth Annual Convention of the Washing[ton] State Mast[er]

Top Row, left to right: S. Patterson, Spokane, and G. H. Sutherland, Walla Walla. Miss W. F. Frizlen, Secretary of Seattle Association, and Mrs. P. J. Lavan, Seattle. James Griggs, Tacoma, and J. E. McCormack, President-Elect, Spokane. Bottom: Group of Master Plumbers and a Group of Ladies attending Washington Master Plumbers' Convention.

President Bart D. Coffey, of Portland, Ore., Addresses Convention.

Bart D. Coffey, president of the Master Plumbers' Association of Portland, Ore., was thereupon introduced and delivered a most interesting address, which follows herewith in part:

"Perhaps it has never occurred to you that we are greatly in need of mutual encouragement for, whether or not the average plumber is more timid, less self-assertive than other craftsmen, it is never the less a fact that he is in a class by himself, not only in respect to his own calling but also in respect to his relation to all other crafts and to the public itself. We know this is so but we do not often pause to consider why it is so.

"Upon no other craft in the building industry does the health and well being of whole communities rest as upon the plumber, he may not slight or execute a piece of work in a careless manner and have as his only regret the knowledge of his default in workmanship—he has in addition the sure knowledge that the innocent and the ignorant are going to suffer and be helpless as to knowledge of how to right the wrong, and sickness, disease and death may enter the places of the rich and the humble homes of the poor because he was not the conscientious workman that he should have been.

"He is in a class by himself, he finds when at the hands of the funny man of the press and the cheap cartoonist he is ranked with the nationalities and creeds, and used as suitable material for quips and jokes, and caricature. All the while all these are dependent every day they live in modern society on knowledge of the master plumber.

"It is well for us to draw apart from time to time not only to revise our methods and improve our workmanship but to let each other know that we are fighting each others' battles for cleaner living, for better homes and a better citizenship, hoping that, in our struggle for recognition, sometime in the years to be the master plumber will have come into his own and be recognized everywhere by city officials and private citizens as an all-important factor in carrying forward the great work of civilization."

He also called attention to the desire of Portland for the National convention in 1925.

Mr. Coffey's address was followed by remarks from various delegates, after which the meeting adjourned. In the evening the delegates were entertained at a theatre party.

Saturday Morning Session.

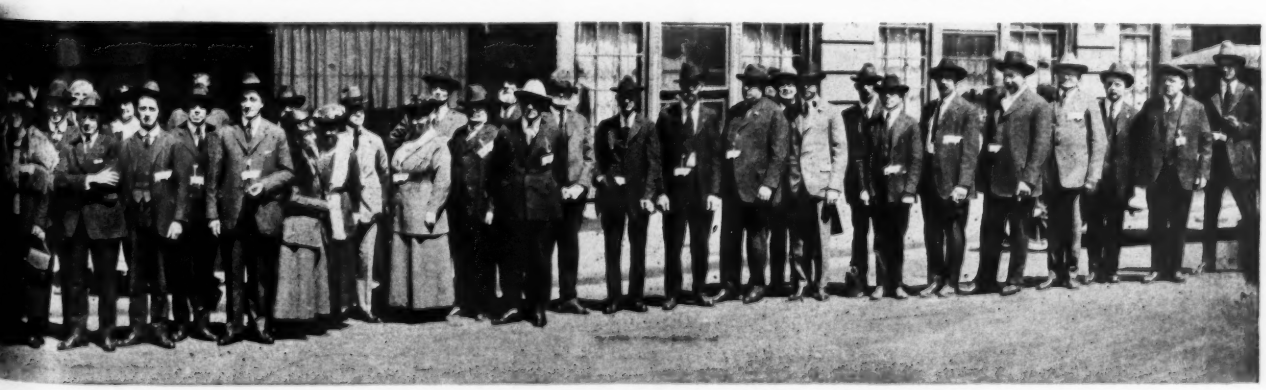
The convention was called to order at 10 o'clock Saturday morning. Resolutions of condolence and sympathy on account of the death of three highly esteemed members of the association, E. V. Lambert, Spokane; George Daley, Seattle, and John Coughlin, of Seattle, were extended to the families of the departed members.

The Resolution Committee also introduced motions adopting the report of the Auditing Committee, the report of the president and secretary and recommended that an appropriation be made to defray the expenses of the membership drive.

J. C. Greenberg on Trade Extension.

J. C. Greenberg, of the National Trade Extension Bureau,

(Continued on Page 449.)



ite Master Plumbers' Association, Held in Spokane, Wash., May 13 and 14, 1921.

NEW JERSEY MASTER PLUMBERS *in* ANNUAL CONVENTION

State Association Adopts "Bath a Day Keeps You Fit Every Way" As Its Official Slogan—Endorses Work of "T. E. B." and National Association, and Holds Most Successful Gathering in Its History

THE twentieth annual convention of the New Jersey State Association of Master Plumbers, held at the Robert Treat Hotel, Newark, N. J., on Wednesday and Thursday, May 18th and 19th, will go down in history as one of the most successful gatherings of its kind, from the standpoint of attendance, enthusiasm and harmony—especially the latter—ever held by a state organization of plumbers.

With ninety-six delegates, five past presidents and thirteen local presidents, on the job—the largest attendance at an annual convention in the history of the association—the proceedings went through as smooth as clock work, and from the tap of the gavel, in the hands of President William A. Snudden, which called the convention to order, to the election and installation of officers, which wound up the business of the two-days session, there was not a single discordant note. On the other hand, the oldest veteran trade journalist at the press table, who has grown bald-headed "covering" hundreds of such gatherings, was willing to go on record, after it was all over, to the effect that never in his experience had he been present at a meeting of master plumbers, where such a splendid spirit was in evidence or where a more earnest desire to do all in their power for the betterment and elevation of their industry was manifested by the delegates.

Among the constructive work accomplished by the convention was the launching of a movement to bring about a state code of plumbing. The delegates also went on record as approving of a closet bowl with a long horn.

"Bath a Day" Campaign Heartily Endorsed.

Following the reading of an essay, prepared by "Domestic Engineering," on the "Bath a Day" campaign, in which the aims and achievements of that movement were explained in detail, the delegates enthusiastically voted to a man that the essay be spread on the minutes as part of the official proceedings, and that "Domestic Engineering's" now nationally famous motto "A Bath a Day Keeps You Fit Every Way" be adopted as an official slogan of the New Jersey Association.

Other Important Resolutions.

Other important resolutions adopted were as follows:

"Resolved that the New Jersey State Association, in convention assembled, endorse the policy of the National Association, as presented by our National President."

"Resolved that, in as much as it must be apparent to every master plumber in our state who reads his trade papers, and follows, no matter in how small a way, the very much needed and, without a doubt, helpful work of the Trade Extension Bureau for the master plumbers, that the magic word 'education' is becoming more and more recognized as one of the most essential necessities of the present time. Therefore it is with this thought in mind that this resolution is presented: That the convention concur in the organization of a State Educational Committee, the committee to consist of the chairman of the Educational Committee of each local, and when there exists no such committee in any local, then any member of said local being duly appointed by the president of such local shall be considered a member of the State Educational Committee. The purpose of and the primary duties of this committee shall be the working out of all matters of an educational nature, and to present them at stated times to all the associations in the state."

"Resolved that, whereas, by its operations and educational campaign a business education and much valuable information has been imparted to the plumbing and heating contractors by the National Trade Extension Bureau. Therefore, be it

"Resolved that the New Jersey State Association of Master Plumbers heartily endorse the work of the Trade Extension Bureau, and that we pledge our moral support to keep it in operation for the carrying on of these invaluable teachings that are so much needed by our craft at large, and recommend that each member subscribe for and read its literature. And be it further

"Resolved that the officials of the Bureau be commended

Delegates and Guests Attending the Twentieth Annual Convention of the New Jersey State Association

for their intense interest and willingness shown in aiding the master plumbers in every way."

Resolutions of Condolence.

A resolution of sympathy was adopted on behalf of John A. Corcoran, delegate-at-large and one of the most popular members of the organization, on the occasion of the loss of his youngest daughter. It read as follows:

"Whereas, in our hours of need and relaxation no one member has contributed more for our good than John A. Corcoran. Be it resolved that we rise in expression of our sympathy with him and his family in the loss of his youngest daughter, and we know that his faith will enable him to sustain the loss in the assurance that there will be a reunion that will be blessed."

Another resolution of sympathy, unanimously adopted was as follows:

"Whereas, one of the best friends of our association, and of our ladies, Dewitt Cook, of W. V. Egbert & Co., is in Coldwater, Mich., to recuperate his health, therefore be it resolved that the New Jersey Association of Master Plumbers, in convention in his home city, send him hearty wishes for a complete and early recovery of his old-time health, so that we may again enjoy frequent meetings with him in our every day and business life, and that the members send him a post card shower."

A resolution expressing the sympathy of the delegates with William Delhagen, of the Convention Committee, on the loss of his brother was also adopted.

Wednesday Morning.

The convention was called to order at 10:45 Wednesday morning. After an address of welcome by President Snudden, a stirring invocation was delivered by the Rev. M. J. Corcoran, which was followed by addresses from the mayor of Newark and the Rev. O. E. Braune. The delegates then got down to business, which consisted of the reading of the convention call, report of the Entertainment Committee, appointment of the Credentials Committee, reading of communications and the president's report. The rest of the first morning session was taken up by speeches of the National President, the Newark President and the President of the Ladies' Auxiliary.

National President Durkin, when he stepped to the front of the hall to address the delegates, came in for a rousing reception, but that ovation was mild compared to the tremendous outburst of applause which later rewarded the really notable talk he delivered to the convention, presenting the policy of the National Association.

The Ladies on Motor Ride and Shopping Tour.

While the convention was in session, Wednesday morning, the wives, daughters and other fair relatives of the delegates, comprising the ladies' auxiliary, started out on a motor ride through the Essex Country Park Systems, and the Union County Battlefields at Union and Springfield, stopping for luncheon at the Mushroom Farm, in the Orange Mountains; then to Eagle Rock, and on to the Little Water Falls Sheds, and back to the Robert Treat Hotel.

On the morning of the second day the ladies set out on a shopping tour, attending a matinee performance at the Brandford Theater, in the afternoon, and joining the men folks at a banquet and ball at the Robert Treat Hotel, in the evening.

Wednesday Afternoon.

The afternoon session of the first day of the convention opened with the taking of a group photograph of the delegates.

The following business was then transacted:

Secretaries' reports, treasurer's report, appointment of Auditing Committee, National Director's report, Delegates' report of Pittsburgh Convention, report of Credential Committee and roll call.

Presentation of resolutions, report of officers, report of State Organizer.

Reports of Advisory, Sanitary, Essay, Apprenticeship and Legislative Committees.

Auditing Committee's report.

Thursday Morning.

The Thursday morning session opened with unfinished business of the last convention, and was followed by the report of the Resolution Committee, new business, and an address on "Standardization" by Mr. Drake, of the Standardization Committee of the National Association. The latter made a strong plea for a national code of plumbing, stating that he had followed with interest the earlier discussion of the delegates as to the need of a state code, and arguing, 'if you gentlemen are in favor of a state code, why not a national code?"

Thursday Afternoon.

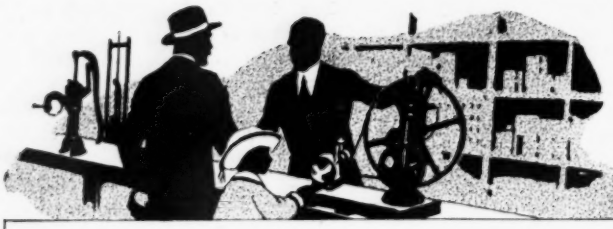
The Thursday afternoon session was devoted to addresses by Miles W. Beamer, secretary of the New Jersey State Tenement House Commission, Mr. Doyle, of the Trade Extension Bureau, and others.

Mr. Beamer's remarks were received with particular interest by the delegates, and great applause greeted the statistics he quoted as to the good work performed by the State Tenement House Commission. Even more applause attended the speaker's expression of the desire of the Tenement House Commission to work with the plumbers of the state, and his personal appreciation of the hearty co-operation he had received from the New Jersey Association of Master Plumbers in the past.

Mr. Beamer told the delegates that since the new tenement laws were enacted his commission had obtained the removal of

(Continued on Page 445.)

Association of Master Plumbers, Held at Newark, N. J., May 18 and 19, 1921.



AUTOWATER SYSTEM AGENTS

This advertisement, appearing in the May 28th Country Gentleman was prepared especially to help Goulds dealers in selling the Goulds line. When you get your copy put it in your window. If you haven't a supply of Autowater System information blanks, send for some.

THE COUNTRY GENTLEMAN

PUMPS

There is a Goulds Pump for every service. If you have a pumping problem, take it to pump headquarters.

Fig. 1951 PITCHER SPOUT PUMP
For use over cisterns or shallow wells.

Fig. 1911 HYDRAULIC RAM
For Private Water Supply—Pumps water with no cost for Power.

Fig. 1931 "PYRAMID" DOUBLE ACTING POWER PUMP
For Private Water System — Overhead Irrigation, Fire Protection, etc. Engine, Electric Motor or Belt Drive.

DEEP WELL AUTOWATER SYSTEM
(Outfits Y and Z)
For Private Water Supply—Y for Open and Z for Pressure Tank Systems.

This is an Information Blank.

State your pumping problem on it, and mail it to us. Goulds engineers will do the rest.

1. Water is desired for the following purposes
2. Source of supply is well ○, cistern □, spring ○, lake ○, or river ○. (Check which)
3. If a Well, give these dimensions: Inside diameter ... Total depth ... Distance from top of well to lowest water level ... Does the water level drop under continuous pumping? ... If so, how much? ...
4. If cistern, spring, lake or river. The vertical distance from supply to where pump would be located is ... The horizontal distance is ...
5. Water is wanted to supply following: Family of ... persons ... Following live stock ...
6. It is desired to operate outfit by: Electricity ... Gasoline Engine ...
   If Electricity: Is current direct or alternating? ... What voltage? ... Is current supplied by power line of public utilities company? ... Or Farm Lighting System? ... If alternating current, cycles ... phase ...
   NOTE—It is best to consult local Light and Power Company concerning the kind of electric current available.
7. It is desired to use: Open elevated tank ... Pneumatic (or Pressure) Tank ...
8. Is it desired to use both rain and well water? If only one, indicate which ...
9. Rough sketch of plan of house and grounds, showing distances, elevations, location of water supply, etc., attached ...
10. Please send me full information about Fig. ... shown on this page.
11. Information is also desired about the following additional pumping problems ...

I prefer to deal locally with (dealer's name and address) ...

On the basis of the information given above, please give me, without charge or obligation, your advice as to what type of pumping equipment is best suited to my requirements.

Your name ... Your address ...

THE GOULDS MANUFACTURING COMPANY *Since 1848* SENECA FALLS, N. Y.
BOSTON PHILADELPHIA CHICAGO ATLANTA HOUSTON
NEW YORK PITTSBURGH DETROIT *Agencies in all principal cities*

GOULDS AUTOWATER SYSTEM
(Outfit X)
A complete unit comprising pump, pressure tank, motor and control—supplies water the year around for kitchen, laundry and bath; or as auxiliary supply for greenhouse and garden, dairy, stock barn, garage and outhouses. Pumps 180 gallons an hour. Noiseless, strong, vibrationless. Operates automatically by electric current from central station or farm lighting plant. Can be quickly and easily installed.

Fig. 1100 "POMONA" BARREL SPRAYER
For spraying fruit trees in small and medium size orchards.

Fig. 1814 "STAR" FORCE PUMP STANDARD
For Dooryard use—Hand or Windmill Operation. For spout delivery or filling overhead storage tanks.

Fig. 1810 — SINGLE STAGE CENTRIFUGAL PUMP
For irrigation, drainage, general water supply, handling cider, vinegar, etc.

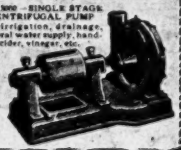


Fig. 1880 DEEP WELL PUMPING HEAD AND JACK
For Dooryard use—Hand, Windmill, Electric Motor or Engine Operation. For spout delivery or filling overhead tanks.

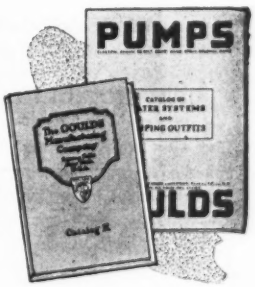
GOULDS

Making It Easy—

READ the advertisement reproduced on the opposite page which appears in the May 28th issue of Country Gentleman. It is typical of Goulds co-operation in bringing the purchaser and the retailer together. It displays nine different types of Goulds Pumps. The market for each model is large and is daily being enlarged by constant advertising. All are being sold successfully and profitably by Goulds dealers and agents throughout the country.

The pumps shown in the opposite advertisement are not sold direct by the Goulds Manufacturing Company. Sales are handled in every instance direct by retailers to whom all inquiries are sent. Is it any wonder Goulds Pumps are easy to sell?

The Goulds Autowater System (see bottom of opposite page) is making a sales history today. It is the ideal system for farm and home water supply. It is automatic in operation—noiseless, strong, vibrationless.



Every Goulds dealer or agent should have our Water System Catalog and general Catalog "K." They contain detailed information and prices of the Goulds line. Send for them. They will help you in your sales.

The AUTOWATER System

a complete unit—pump—pressure tank—motor—control

Pumps 180 gallons of water an hour. Operates automatically by electric current from central station or farm lighting plant. Lasts for years. Easy to install, easy to operate, easy to obtain.

Goulds national advertising and dealer co-operation are making it easy for you, Mr. Dealer, to sell the Autowater System.

Application for agencies for the sale of the Autowater line in exclusive territories, will have prompt individual attention. Your territory may still be open. If you are interested, write at once concerning territory and for agency proposition.

THE GOULDS MANUFACTURING COMPANY, *Seneca Falls, N. Y.*

(Established 1848)

NEW YORK 16 Murray Street
CHICAGO 12-14 S. Clinton St.
BOSTON 58 Pearl Street
PHILADELPHIA 111 N. Third Street
DETROIT Dime Bank Bldg.
HOUSTON Carter Bldg.
PITTSBURGH Oliver Building
ATLANTA Citizen's & Southern Bank Bldg.

GOULDS

AMONG THE WHOLESALERS AND MANUFACTURERS

COMPANIES RECENTLY INCORPORATED.

The Cleansible Water Heater Co., Los Angeles, Cal., has filed notice of organization to manufacture water heaters and similar products. John Baron, Lankershim, near Los Angeles, is at the head of the enterprise.

The Necedah Mfg. Co., Necedah, Wis., established several years ago to manufacture farm electric lighting plants and similar products, has reincorporated as the Necedah Mfg. Corporation, with a capital stock of $100,000. The new corporation is headed by Benjamin W. Reynolds, F. C. Kehr and L. S. Wright, all of Milwaukee.

ADDS PLUMBING SUPPLY DEPARTMENT TO BUSINESS.

The Miami Supply Co., of Miami, Fla., has added a plumbing supply department to its regular line of mill equipment and machinery. E. E. McFarland will be in charge of the new department.

OPENS CINCINNATI BRANCH FACTORY.

The Chicago Granitine Mfg. Co., Chicago, announces the opening of a branch factory at 919-921 West Fifth Street, Cincinnati, Ohio, to take care of the Eastern shipments.

SKINNER BROTHERS PURCHASE FACTORY IN NEW JERSEY.

The Skinner Brothers Mfg. Co., Inc., St. Louis, Mo., has acquired a factory covering an area of three and one-half acres in Elizabeth, N. J., which will be used to manufacture the company's heating and ventilating equipment for distribution east of Pittsburgh. The general offices will remain in St. Louis. The officers of the company are Fred A. C. Skinner, president, and Merrill G. Skinner, vice-president and secretary.

HOOSIER FARM LIGHT CO. PURCHASES PLANT.

The Hoosier Farm Light Co., Evansville, Ind., recently incorporated with a capital of $150,000, to manufacture isolated electric plants for rural service, will establish works at the former factory of the Drury Mfg. Co., recently acquired at a receiver's sale. W. A. Koch, of the Evansville Metal Bed Co., and Charles F. Dickmann, of the Crescent Stove Works, Evansville, are at the head of the company.

IN NEW AND LARGER QUARTERS.

The Evans-Bliss Co., Chicago, has moved its offices from 180 North Dearborn Street, to room 721, 118 North La Salle Street.

J. R. Devereux & Co., Montreal, Quebec, Canada, have moved from 353 Beaver Hall Square to the New Birks Building.

The Charles F. Hause Mfg. Co., Omaha, Neb., is moving from its old quarters, 1812 St. Mary's Avenue, to a recently acquired building at 1209 Farnam Street. The new structure is four stories high and will afford large manufacturing space.

NEW PLANTS AND ADDITIONS.

The Chapman Valve Co., Indian Orchard, Mass., has awarded the contract to E. J. Pinney, Inc., Springfield, Mass., for the construction of a one-story, brick and reinforced concrete foundry building, 94x280 ft. The building, with equipment, will cost approximately $125,000.

The Independent Sanitary Mfg. Co., of Buffalo, N. Y., has plans under way for a one-story foundry building to be erected in Du Bois, Pa. Cudall, Powell & Mosher, Buffalo, are the architects, and George Drake is president of the company.

The Weil-McLain Co., Chicago, plans the construction of a one-story metal pattern shop, 60x160 ft., in connection with its works in Michigan City, Ind. The new structure is estimated to cost about $50,000.

The Edward Valve & Mfg. Co., East Chicago, Ind., announces that it will defer construction of buildings to replace those recently destroyed by fire. The company will call for bids in the fall. The work contemplated will amount to $400,000.

PROGRAM FOR HEATING AND VENTILATING ENGINEERS' SEMI-ANNUAL MEETING.

The official program for the semi-annual or summer meeting of the American Society of Heating and Ventilating Engineers, which is to be held in Cleveland, O., June 14th to 17th, with headquarters at the Hotel Winton, has just been issued by Secretary C. W. Obert, of New York City, as follows:

FIRST SESSION.—Tuesday, June 14, 2 P. M.

Welcome Address.—Response by President.

Annual Reports of Chapters: Illinois, Kansas City, Massachusetts, Michigan, Minnesota, New York, Western New York, Ohio, Eastern Pennsylvania, Pittsburgh and St. Louis.

Report of Committee on Chapters.

Report of Committee on Code for Testing Heating Systems.

Report of Committee on Code for Testing Low-Pressure Heating Boilers.

Report of Committee on Model Chimney Ordinance.

Report of Committee on Revision of Constitution

SECOND SESSION.—Wednesday, June 15, 8 P. M.

Air Conditioning Session.

Paper: Resistance of Materials to the Flow of Air. By A. E. Stacey, Jr.

Paper: Drying as an Air-Conditioning Problem. By A. W. Lissauer.

Paper: Rates of Drying. By Ray Power, United States Department of Agriculture.

THIRD SESSION.—Thursday, June 16, 10 A. M.

Heating Session.

Paper: By-Product Coke Ovens and Their Relation to Our Fuel Supply. By E. B. Elliott.

Paper: Hot-Water Heating in Asia Bank. By H. L. Alt.

Paper: Circulation Problems in Hot-Water Heating. By A. W. Luck.

Paper: Fractional Distribution in Two-Pipe Gravity Steam-Heating Systems. By J. A. Donnelly.

Paper: The Application of Gas to Space Heating. By Thompson King.

FOURTH SESSION.—Thursday, June 16, 2 P. M.

Ventilation Session.

Paper: Some Developments in Centrifugal Fan Design. By F. W. Bailey and A. A. Criqui.

Paper: Plea for Better Distribution in Ventilation. By J. R. McColl.

Paper: Ventilation in Metal Mines. By D. Harrington, United States Bureau of Mines.

FIFTH SESSION.—Friday, June 17, 10 A. M.

Research Session.

Report of Committee on Research.

Paper: Apparatus for Testing Insulating Materials. By F. B. Rowley.

Paper: Ventilation Tests of School Rooms in Minneapolis. By L. A. Scipio.

Paper: Chimneys for House-Heating Boilers. By L. A. Scipio.

Paper: Dust Standards. By S. H. Katz.

Papers: Commentary by L. A. Scipio, on Report of Heat Transmission.—Corkboard and Air Spaces. By A. J. Wood and E. F. Gundhofer.

JAMES A. CAMPBELL DISCUSSES BUSINESS PROSPECTS.

James A. Campbell, president of the Youngstown Sheet & Tube Co., Youngstown, Ohio, has issued a statement to the employes of the company in which he fully and frankly discusses business and labor conditions.

"It is our opinion," says Mr. Campbell, "that the American Federation of Labor has temporarily put a sprag in the wheel of business progress, and until this is removed by legislation or stern necessity of the members of the unions, we do not believe that business will improve much throughout the country.'

Mr. Campbell believes that high transportation rates are largely at the root of our present troubles, as business started to decline immediately after freight rates were advanced 40 per cent on Sept. 1, 1920. The employees of the railroads are contending for war wages in peace times, and therefore the railroads are unable to reduce freight rates. Manufacturing costs are kept on a very high plane—higher, in fact, than during the war.

"The labor unions," says Mr. Campbell, "are doing a great injustice, not only to their own people, but also to the other 85 per cent of the people of this country who do not belong to these unions, by insisting on wages that make lower freight rates impossible and thus keeping millions of their own people out of work. Besides, by preventing a reduction of freight rates, they are adding to the cost of living for everyone."

"Wages generally have been reduced throughout the country an average of about 20 per cent, and the price of many commodities has been reduced accordingly; so that the cost of living, outside of rents, perhaps, is considerably less at present than it was last year. But if *you* want to build a house, you should not be forced to pay the high freight on lumber and brick which present wages on the railroads make necessary. Nor should *you*, having had your wages reduced, have to pay the wages the building trades are trying to maintain at present. Few people will build under such conditions.

"I am thoroughly convinced that if the wages of all the workers in this country were reduced to about the same level, that the cost of living would be considerably lower than it is at the present time, cost of building would be greatly reduced, and all business would become more nearly normal.

All Producers Must Get on Farmers' Level.

"High freight rates enter into every phase of living—the cost of food; the cost of clothing; the cost of automobiles; the cost of steel, and the cost of building. *All of these lines are affected and until all producers get on the same level as the farmer, who is the backbone of this country, furnishing him his agricultural implements, his fertilizer, his automobiles, his clothing, etc., on the same basis on which he is paid for his food products, business is not going to be very prosperous.*

Congress Could Help.

"If Congress would wipe off the statute books the Adamson and the Esch-Cummings laws and leave the railroads in control of their rightful owners under the same conditons existing prior to Government control, we would immediately have a reduction of railroad wages to the common level, with lower freight rates, and business would soon become more nearly normal. It is not likely that this will happen. It seems more likely that this fight between the railroads and railroad labor will continue until the railroad employees are convinced that they cannot secure steady employment at higher wages than prevail in other occupations, which I fear will take a long time.

"You may think from the above that I am in favor of low wages. I am not. I think that wages should be as high as world conditions will permit, but they must be on about the same basis for everyone, throughout this country at least.

Much Unemployment Will Continue.

"Feeling as I do, I am of the opinion that there is going to be much unemployment through the year in all lines. I believe, of course, that business will be better than it is at present, due to better weather and the activities that follow from it; and when there is a fair settlement made with the building trades throughout the country, that will undoubtedly create a market for more building materials and give employment to many more men.

"In our business there is nothing else on which to base expectations of improvements. We are getting all the business that we can, and we have had our share of what there was. In addition, we have added to the stock of the Continental Supply Co. to the extent of 13,800 tons of pipe in order to keep our mills in operation as fully as possible, doing all that it was safe for us to do in that direction.

Foreign Competition a Factor.

"We hope with you that improved conditions may come about much sooner than expected, but it seems to us that the cause of this depression must be removed before we can expect greatly improved conditions. We must not forget, also, that we will soon have competition from Germany, France and Belgium, where wages and costs are much lower than in this country.

"We are operating our plant now about 35 per cent of capacity, and while we hope soon to be operating 50 per cent, we could not call business good until we can operate at least 80 per cent; so that we have a long way to go before we will have what we call good business."

AMERICAN RADIATOR GOLFERS IN ACTION.

With Old Sol shooting a sizzling 92, the members of the American Radiator Golf Club in Chicago burned up the No. 1 course of the Olympia Fields Country Club, Matteson, Ill., on Tuesday, May 24th. E. G. Ingersoll, who is 77 years old, won the asbestos medal for completing a torrid round. H. Foster Straw won the blind bogey event with a card of 92-8-84, and J. E. Roberts, of Buffalo, was second with 117-32-85, W. A. Clohisey being third with 122-35-87. Mr. Straw and Vice-President Charles K. Foster shared honors for the low gross of 92, which was equalled by Mr. Fahrenheit. Other leading totals were J. A. Bennett, 94; D. M. Forgan, 98; and L. M. Butler, 99.

NEW ENGLAND METAL PRODUCTS GOLF ASSOCIATION HOLDS THIRD MEET OF THE SEASON.

G. H. Collett was the star of the third meeting of the New England Metal Products Golf Association, held on Thursday, May 19th, at the Rhode Island Country Club, Providence, R. I. With a handicap of but two strokes he captured first prize in the morning round with a net score of 79, and in the afternoon he turned in a net of 86, tying W. F. Stearns for low score honors. Second prize in the forenoon went to R. M. Greenlaw with a net of 84. Several other good scores were made both morning and afternoon.

The attendance was the largest for some time, twenty-three players participating in the afternoon round of whom three were guests of the club. The day was an ideal one, a little cool for the early morning motor run to Providence for the Boston members, but made to order for play on the links.

The score keeper's record of the day's events follows:

Forenoon Round.

	Gro.	Hdcp.	Net		Gro.	Hdcp.	Net
G. H. Collett	81	2	79	W. A Griffith	112	16	96
R. M. Greenlaw	98	14	84	E. D. Chesebro	116	20	96
G. H. Bell	95	6	89	R. E. Sargent	111	12	99
L. W. Smith	103	14	89	J. S. Nicholl	114	12	102
W. J. Eddy	113	24	89	H. L. Doten	114	12	102
H. D. Nickerson	105	14	91	H. W. Thorndike	123	20	103
S. B. Reed	106	14	92	C. F. Glavin	128	24	104
W. F. Stearns	110	18	92	C. H. Ely	123	18	105
F. W. Hubbard	113	20	93	G. F. Uhler	135	30	105
E. O. Chase	110	14	96				

J. H. Stevens, R. D. A. Thompson, W. H. Thayer, no cards.

Afternoon Round.

	Gro.	Hdcp.	Net		Gro.	Hdcp.	Net
G. H. Collett	88	2	86	J. S. Nicholl	109	12	97
W. F. Stearns	104	18	86	F. W. Hubbard	117	20	97
G. H. Bell	93	6	87	S. B. Reed	113	14	99
W. H. Thayer	93	6	87	H. L. Doten	113	12	101
E. O. Chase	102	14	88	C. H. Ely	119	18	101
H. D. Nickerson	106	14	92	E. D. Chesebro	121	20	101
L. W. Smith	106	14	92	W. A. Griffith	118	16	102
R. E. Sargent	105	12	93	G. F. Uhler	136	30	106
R. M. Greenlaw	107	14	93	W. J. Eddy	134	24	110
H. W. Thorndike	115	20	95	C. F. Glavin	135	24	111

J. H. Stevens, R. D. A. Thompson, W. M. Trafton, no cards.

NEW CONSTRUCTION WORK.

The following are among the most important contracts recently awarded as reported by the "American Contractor":

$2,000,000 factory, Rockford, Ill.; Petroleum Motors Corporation.

$800,000 school, Akron, O.; Board of Education.

$750,000 school, Detroit, Mich.; Board of Education.

$500,000 school, Muskegon, Mich.; Board of Education.

$400,000 apartment building, Milwaukee, Wis.; Milwaukee Department Building Securities Co.

$237,232 public school No. 115, New York City; City of New York.

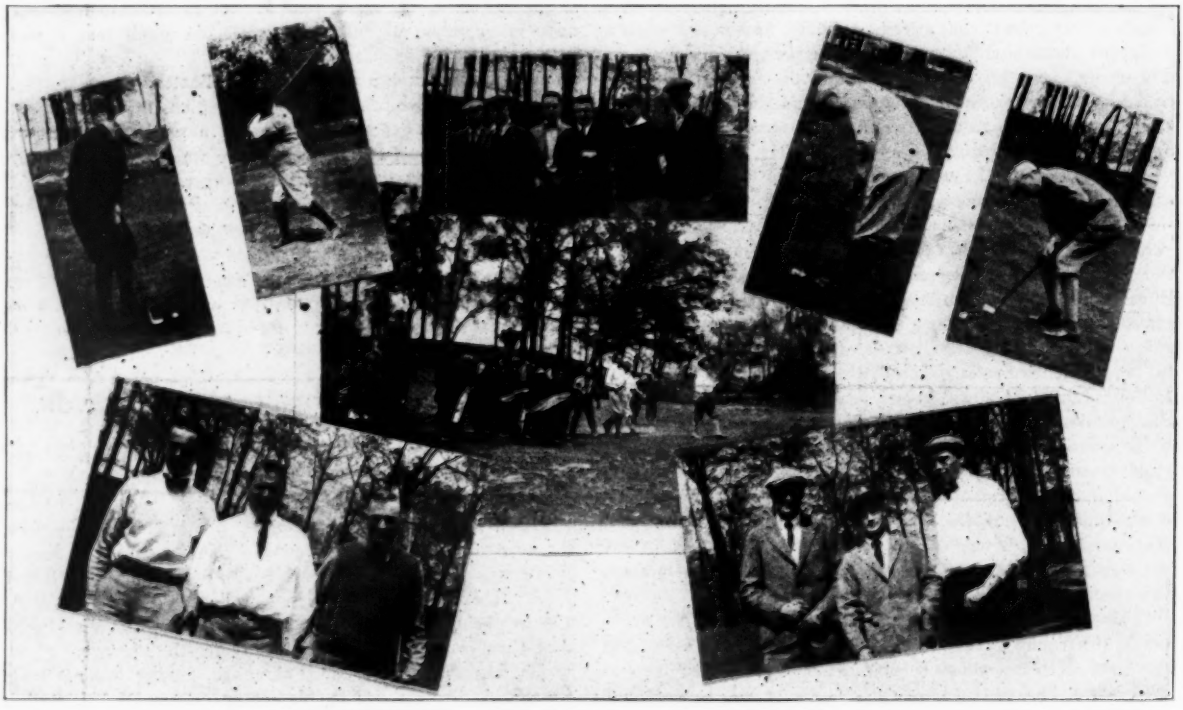
$200,000 school, Maple Heights, O.; Board of Education.

$200,000 building, Washington, D. C.; The Netherlands.

$150,000 jail, sheriff's residence and power plant, St. Cloud, Minn.; Stearns County Board of County Commissioners.

PICTURES OF WESTERN TRADE GOLFERS.

Members of the Western Trade Golf Association are shown in action in the accompanying illustrations, snapped at the second meet, held at the Olympia Fields Country Club, near Chicago, on Tuesday, May 17th. At the top we see Harry Hart putting and "Bill" Byrd about to lean on a 250-yard drive. In the group picture are W. G. Sine, Martin Weil, Howard Evans and B. A. Schutz, while the next two pictures show the crouch putting stance, with Howard E. Crum and Don Forgan taking the leading parts. The first flight is seen getting away for the afternoon round, in the center picture. The lower photographs show L. R. Taylor, Dave Herron, Ross Flinder, Don Forgan, Joe Carroll and Harry Sedgwick. Messrs. Taylor and Herron had a close fight for the approaching and putting contest, and in the bargain, Mr. Herron, former national amateur golf champion, shooting from scratch, shot a fine round of 75 in the afternoon. The next meet will probably take place at the Green Valley Country Club, Wheaton, Ill., some time in June.



Snapshots of Western Trade Golfers at Olympia Fields, near Chicago.

The Metal Market

Steel and Iron.

The current of demand for finished steel in the Pittsburgh district last week continued sub-normal in volume, but there was a better tone shown among producers, with somewhat more regularity in quotations. The weakness that developed from the dullness affected special lines such as cold and hot rolled strip and hoops and bands.

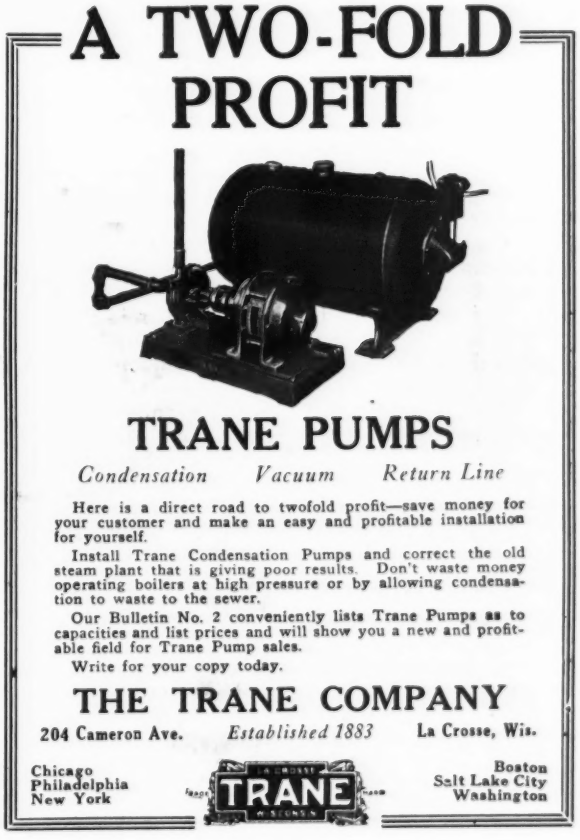
There was also a more decided revision in spot price quotations in semi-finished steel and especially sheet bars, while pig iron in the slightly larger volume of small lot trades seemed to be able to resist much impression from the buyers' onslaughts and, while it was possible to shade bessemer and foundry grades 25 cents a ton on small lots of prompt material, the bulk of the market appeared to have exhausted its ability to make concessions and did not put forth any effort to gather in the low-priced trade.

But on the whole the steel industry may be said to be fairly even and operating at about from 35 to 40 per cent of the mill capacity of the country. If measured by pre-war capacity, however, the showing would not appear so bad. New standards of production and outturn have been set, however, and comparisons are not gratifying at the moment. But consumption is not growing less, and if anything it is more promising. Export trade and possibilities within the last week in connection with the Far East are at least encouraging. China is in the market for 15,000 tons of steel rails in addition to 6,000 already purchased in this country. From the same source come inquiries for railroad rolling stock, comprising 78 locomotives and 1,000 steel cars. Japan has been and is still to some extent a buyer of American black mill sheets. The Argentine will shortly award a contract for 10,000 tons of rails with fair prospect that the order will fall to the United States.

Domestic railroads so far have bought next to nothing but are beginning to show pinch of necessity here and there, as indicated by a proposal from the Southern Pacific for 10,000 kegs of spikes which is expected soon to be closed. It may be noted, however, that a considerable rail tonnage, contracted for before the period of depression sets in, has been delivered and is stored waiting favorable opportunity for laying. There is also a considerable accumulation of repair work for rolling stock which will call for a large amount of steel, but which is held in abeyance partly because the roads are not prepared to undertake the expense and also because there is no immediate need for the cars of which upwards of 450,000 are at present idle. On the other hand, among the items of general consumption, tin plate has been very quiet during the season of usual activity and present indications offer no immediate prospect for increased demand. The fruit and vegetable pack this year, it is estimated, will not exceed at best 75 per cent of last year. The manufacturers of canned foods other than vegetables and fruits and of sundry canned merchandise have been buying containers as sparingly as possible. Tin plate has been quiet in keeping with requirements as narrated. The price, except for occasional distress lots, remains steady at $6.25 per base box.

While the producers of pig iron have been heartened by the orders received within the past week or ten days, they do not rely upon the steady continuance of demand. The market has been spotty right along or ever since the period of depression set in, and we have just had one of the bright spots The foundries are avoiding the market so far as possibe. They are using up all the old material and scrap on hand and are buying

The Recognized Standard
Certain specifications must be met by plumbers' brass goods if they are to give the service expected of them.
The fact that our goods have been known to the trade for over thirty-three years and are in demand more and more every year, is evidence of the place they hold in the field
Our Trade Mark on a piece of brass goods is your assurance that it is right. See that it appears on the stock you use Order from your jobber.
A Request on your letter-head will bring our catalog
The McRae & Roberts Co.
DETROIT, MICH.
Manufacturers of
Valves, Bibbs, Stop and Wastes, Pipe Fittings, Air Cocks, Water Gauges
Standard For 33 Years
MR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TRANE PUMPS
Condensation Vacuum Return Line
Here is a direct road to twofold profit—save money for your customer and make an easy and profitable installation for yourself.
Install Trane Condensation Pumps and correct the old steam plant that is giving poor results. Don't waste money operating boilers at high pressure or by allowing condensation to waste to the sewer.
Our Bulletin No. 2 conveniently lists Trane Pumps as to capacities and list prices and will show you a new and profitable field for Trane Pump sales.
Write for your copy today.
THE TRANE COMPANY
204 Cameron Ave. Established 1883 La Crosse, Wis.
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Out of the Ordinary

Perfection Improved Wrought Steel Pipe Hanger

In producing this pipe hanger we have succeeded in combining the essentials—**strength, lightness, beauty of design** and **cheapness.**

Only the best **wrought steel** enters into its construction, not a single piece of cast metal being used.

For ease of appliance this hanger is unequaled. It is adjustable for different lengths without the use of pipe couplings or any tools.

Accommodates itself to the expansion of pipe in any direction.

Made in a variety of lengths and special lengths can be furnished to order.

A superior hanger in every way.

Write for catalog showing the complete Perfection Line.

The Beaton & Cadwell Mfg. Co.

New Britain, Conn. *Pioneer Plate Manufacturers*

Branches: New York Office and Store, 234 Water St.

Western Representative—Harry Verbeek Co., 208 N. Wells St., Chicago.
Southern Atlantic States Representative—P. C. Abbott, Richmond, Va.
Eastern Canadian Representative—J. B. Devereux & Co., New Birks Bldg., Montreal, Quebec.
Western Canadian Agents—A. E. Hinds & Co., Galt Bldg., Winnipeg, Canada.
Pacific Coast Representative—Wm. P. Horn & Co., Rialto Bldg., San Francisco, Calif.
Wm. P. Horn & Co., 301 Kerckhoff Bldg., Los Angeles, Calif.
Wm. P. Horn & Co., 711 Deekum Bldg., Portland, Ore.
Wm. P. Horn & Co., 1105 L. C. Smith Bldg., Seattle, Wash.

only such new iron as they need to melt in. The demand for castings has been reflected in that for iron. It has been uncertain and irregular and a number of the foundries, especially throughout New England and New York, continue to carry over more than an ample supply of raw material for their current needs. In a few instances they have been fortunate enough to land a worth while contract or two and have covered with iron against it, usually calling for delivery not exceeding three months ahead. The bulk of the buying, however, has been for carload lots or for from 100 to 300 tons for prompt and thirty-day shipment. Iron production, on the other hand, continues to be of a lighter rate than for many years, and as stocks carried by the consumers and in the furnace yards are exceptionally light and would be quickly absorbed on a reasonable revival of business, and as prices are down well below the cost of production, the furnaces, notwithstanding their keen appreciation of orders, are not willing to commit themselves beyond the comparatively near future. Prices are quoted as follows for pig iron:

No. 2 Pittsburgh	$23.50@24.50
No. 2X Philadelphia	25.84@26.96
No. 2 Southern Birmingham	22.00@23.00
No. 2 Chicago	23.00@24.00
Basic Valley, furnace	22.00@22.50
Bessemer, Pittsburgh	24.00@24.50

Copper.

Copper has taken a decided turn for the better. There has been considerable buying on Japanese and European account, and the London market has also been quite active. With production curtailed the effect has been to stiffen the views of the local selling agents. The larger concerns which have always been the more conservative in the way of price, while they do not announce a withdrawal from the market, have done what for the time being is tantamount to the same thing by advancing their price to 13½ cents for May, June and July. The smaller interests, however, continue to offer prompt and May shipment at 13 cents, June at 13⅛ to 13¼ cents and July at 13⅜ cents. Considerable European demand is expected on the clearing of the political atmosphere there, and while domestic consumption is as yet unimportant the time is believed to be approaching for the larger consumers to come into the market, all of which tends to create a bullish tone and prices are firm at the figures named.

Tin.

Of local trading in tin only a small fraction, possibly not more than 10 per cent, is on consumers' account, and the market has been fluctuating within such narrow limits that there has been little room for speculation on this side of the Atlantic. London toward the end of the week showed an inclination to strengthen and on Friday advanced 2 pounds for spot standard Straits. New York prices at the end of the week were nominally unchanged. Sellers asked 33½ cents, with business possible at 33¼ cents. Arrivals during May have been 645 tons at Atlantic and 110 tons at Pacific ports, in all 755 tons. Tin afloat is reported by the Exchange at 2,076 tons. Only 275 tons of Bolivian ore have been received so far this month.

Lead.

Toward the close of last week lead, which had been quite active, settled down to a quiet routine market. At the first sign of weakness buyers who had bought with considerable freedom withdrew and the smaller independent interests followed the market by meeting the price at 5 cents New York, quoted by the leading interest but without attracting business. For East St. Louis delivery the outsiders cut below the price fixed by the leading interests and quoted 4.80 cents.

Zinc.

There is no improvement in the position of zinc. The market continues dull at current quotations which at the end of last week were unchanged at 4.80 cents for basis East St. Louis.

Other Metals.

Quotations on other metals in New York are as follows:

Aluminum Powder	60-65 cents per lb.
Aluminum (in 15-ton lots) 99% and purer	28.50 cents per lb.
Antimony (Chinese and Japanese)	5.25 cents per lb.
Nickel, Ingot	41 cents per lb.

New York Old Metal Market.

The following prices are current for old metals:

	Buying	Selling
Copper, heavy	10 to 10¼ cents	11¼ cents
Copper, light	8¾ to 9 cents	10 cents
Brass, heavy	5¼ to 5½ cents	6½ cents
Brass, light	4¼ to 4½ cents	5½ cents
Lead, heavy	4¼ to 4½ cents	5½ cents
Tea lead	2¾ to 3 cents	4 cents
Block tin pipe	28 to 29 cents	30 cents
Crucible copper	10½ to 11 cents	12 cents
Solder joints	5½ to 6 cents	7 cents
Mixed babbitt	5½ to 5¾ cents	6¾ cents
Cocks and faucets	7 to 7½ cents	8½ cents

Chicago Old Metal Market.

Chicago wholesale dealers' prices are nominally as follows:

	Buying	Selling
Heavy yellow brass	5½ to 6 cents	7 cents
Brass, light	4½ to 5 cents	6 cents
Brass turnings	4¾ to 5 cents	6 cents
Red brass	8½ to 9 cents	10 cents
Copper, heavy	9 to 9½ cents	10½ cents
Copper, light	7 to 7½ cents	8½ cents
New brass clippings	5½ to 6 cents	7 cents
Block tin pipe	24 to 26 cents	27 cents
Lead, heavy	3½ to 4 cents	5 cents
Zinc	2½ to 3 cents	4 cents

News of the Associations

California Master Plumbers' Annual Convention.

The California Master Plumbers' Association held a most excellent annual convention in Yosemite Valley, Cal., May 19th, 20th and 21st, at which the following officers were elected: President, H. Dixon, Sacramento; vice-president, D. A. Deacon, San Diego; treasurer, F. A. Wilson, San Francisco; secretary, John L. E. Firmin, San Francisco. Members of Executive Board: A. R. Benedict, Pasadena; H. G. Newman, Oakland; C. J. Betteridge, Fresno; J. Hokom, National Director, Los Angeles; John L. E. Firmin, San Francisco.

A complete report of the convention will be published in next week's issue of "Domestic Engineering."

Philadelphia Master Plumbers' Association Ends Successful Drive.

The Master Plumbers' Association of Philadelphia has just concluded a membership drive, and it is of the opinion of their secretary that the association has reached its pinnacle of growth, standing today as the largest master plumbers' association in the country with seven hundred and twenty-three members, and including in its membership list practically all of the good shops in the city. The association, as viewed by a visit to the secretary's office, certainly does wonders for its members; a monthly bulletin is sent out, a credit bureau is in operation with service rendered to all members over the telephone free of charge, and we are informed that something like 150,000 credit reports are on file. A very efficient labor bureau registers all applicants for work, card indexes them, and fills calls for help of all kinds from members, entirely free of charge. An insurance feature called the Beneficial Fund is a side line taken advantage of by about one hundred and sixty members, and

Know genuine Jenkins valves by the name and Diamond mark.

At Supply Houses Everywhere

Jenkins Valves are obtainable in every locality where valves are used. Their distribution is nation-wide and world-wide.

The man who knows valves and valve requirements installs "Jenkins." He has seen them in service as reliable and free from trouble after years of use as on the day of their installation.

The dependability and longevity of Jenkins Valves are due chiefly to the fact that each valve in every type is made for the maximum service, not merely the average.

JENKINS BROS.

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Boston San Francisco
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Factories: *Bridgeport, Conn., Elizabeth, N.J., Montreal, Can.*

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Jenkins Valves SINCE 1864

URINAL STALLS

CENTURIES OF SERVICE
PYRAMID NATURAL SLATE STRUCTURAL
Proof against Time - Wear - Water - Fire

Chapter 6

of a series on

STRUCTURAL SLATE

is issued for use of architects, engineers and plumbing contractors in the belief that it will prove of value and interest in acquainting them with the results of an analysis of heights, widths, and arrangements of parts, which will eliminate from consideration for all ordinary purposes, the multiplicity of patterns, sizes and details of urinal stalls.

THE STRUCTURAL SLATE CO.
PEN ARGYL - - - PENNSYLVANIA

A typical SANYMETAL installation

Wear like iron for they are iron

—and Armco Iron at that—the best we can buy for the purpose—the arch-enemy of rust and deterioration in the toilet-room.

Sanymetal TOILET PARTITIONS
TRADE MARK U. S. REG.

embody every advance, every improvement known to the science of building metal partitions. They **look** clean, **are** clean, **stay** clean. They have proved their superiority in hundreds of America's finest factories, commercial and public buildings.

All doors equipped with SANYMETAL Gravity Roller Hinges.

It will be worth your while to send for the SANYMETAL catalogue.

THE Sanymetal PRODUCTS COMPANY
980 East 64th Street - Cleveland, Ohio

furnishes insurance at a very low cost. Since the establishment of the fund in 1908, only fifteen members of the fund have passed away, and as the assessment at the death of a member of the Beneficial Fund is only $2, and the benefit paid is over $300, it appears like very good insurance at low cost The within five or six hours after receiving, word of the member's cash is placed in the hands of the deceased member's family death.

It seems that the Philadelphia Association always does things right. Two special Pullman cars furnished by the association took the delegates to Allentown to attend the Pennsylvania State Association convention. The party included about thirty wives of master plumbers, and the returning delegation was unanimous in saying that they had a good time.

The president, Wm. H. Ambrose, is making things hum, and the secretary, Robt. H. Pflug-Felder, is a real association man. A large delegation from Philadelphia will go to New Orleans by steamer, leaving New York, May 28th, and a smaller party will make the trip by rail, both ways.

Research Work Under Way by A. S. H. and V. E.

The Committee of Research of the American Society of Heating and Ventilating Engineers takes pleasure in announcing that the Research Laboratory at Pittsburgh, in the midst of its second fiscal year, now has the following program of work in progress:

At the Pittsburgh Laboratory

1. Infiltration.
2. Heat loss through building material.
3. Standardization of dust measurements.
4. Study of combustion in domestic heating boilers.
5. Checking application of heating boiler Testing Code.
6. Temperature, humidity, and air motion effects on health.

At University Laboratories and Elsewhere.

Heat Loss Through Building Materials: Armour Institute of Technology; Pennsylvania State College; Morgan Park Co.

Radiant and Convected Heat: University of Minnesota; Yale University.

Heat Loss from Pipes Buried Underground: University of Michigan.

Study of Pipe Sizes: New York University.

Air Friction in Pipes as Affected by Density: University of Pennsylvania.

Chimney Investigations: Carnegie Institute of Technology.

Ventilation Problems: Minneapolis School Board.

Air Infiltration: McGill University.

Heat Loss Through Glass: Rensselaer Polytechnic Institute.

Comparative Economy in Heating by Direct Radiation and by Air Heated with Steam Coils: Ohio Northern University.

Arrangements for exchange of information have been made with the following: Harvard University, Department of Industrial Hygiene; State Board of Health, New Haven, Conn.; Board of Health of Minneapolis, Minn.; Research Laboratory of the American Radiator Co.; University of Saskatchewan; Department of Scientific and Industrial Research, London; Building firm in Norway; Government Testing Institute, Stockholm, Sweden; Government Testing Bureau, Copenhagen, Denmark.

On western railroad lines traffic is making gains over last month, the Illinois Central showing 6 per cent. more freight loaded in the first half of May than last month. Other roads are comparing favorably with last month, but all are running behind last year, with losses of 5 to 14 per cent. A year ago the railroads were removing a large quantity of delayed freight which was held up on account of the switchmen's strike, and the present comparison is not considered a fair one.

All letter writers should read page 24.

Illinois

Chicago and Vicinity.

Otto Liss, 3528 North Robey Street, has been awarded the contract to install plumbing in the two-story, four-family apartment building to be erected at 2424 Addison Street. The building will be 24x91 ft. and will cost $20,000.

William J. Sievert, 371 West North Avenue, has the contract to install plumbing in a two-story apartment building now being constructed on North Maynard Avenue, between North and Bloomingdale Avenues, for Mills & Sons.

J. J. Daly, 408 North Wells Street, has secured the plumbing contract on the $150,000, one-story bank building being erected at 1604 West Chicago Avenue for the National Bank for Savings.

The Hines Co., 179 West Lake Street, and Frank Tanton, Melrose Park, have secured the heating and plumbing contracts, respectively, on the $60,000, three-story grade school addition to be erected on Lake Street, between Seventeenth and Eighteenth Avenues, Melrose Park, for the Board of Education of Maywood, Ill.

The Alton Plumbing & Heating Co., Alton, Ill., will install plumbing and heating systems in the $100,000, two-story office building to be erected at Fourth and Easton Streets, in that city, for the Millers Mutual Fire Insurance Association.

Architect Axel V. Teisen, 4804 North Kedzie Avenue, has prepared plans, and bids are being taken on the $250,000, three-story apartment building to be erected at Magnolia and Bryn Mawr Avenues, for Plotke & Grosby. The building will be 100x123 ft., and will contain 54 apartments.

Architect A. L. Himelblau, 179 West Washington Street, has prepared revised plans for the $230,000, two-story apartment building to be erected on Sheridan Road and Howard Avenue, for the Dakof Construction Co.

Architect Carl W. Westerlind, 179 West Washington Street, is preparing plans for a $200,000, three-story apartment building to be erected at Seventy-first Street and Lake Michigan.

Plans are being prepared by Architects Rissman & Hirschfield, 139 North Clark Street, for a $100,000, three-story apartment building with stores to be erected at Springfield and Lawrence Avenues, for M. Sugerman.

Bids are being taken for the general contract on the $10,000,000, twenty-story bank and office building to be erected on Jackson Boulevard between Clark and La Salle Streets, for the Illinois Merchants Trust Co. The building will be 178x315 ft. Graham, Anderson, Probst & White are the architects.

Architect Charles S. Front, 105 South La Salle Street, is preparing plans for a $350,000 building to be erected at 1400-1406 West Washington Boulevard for the Public Life Insurance Co.

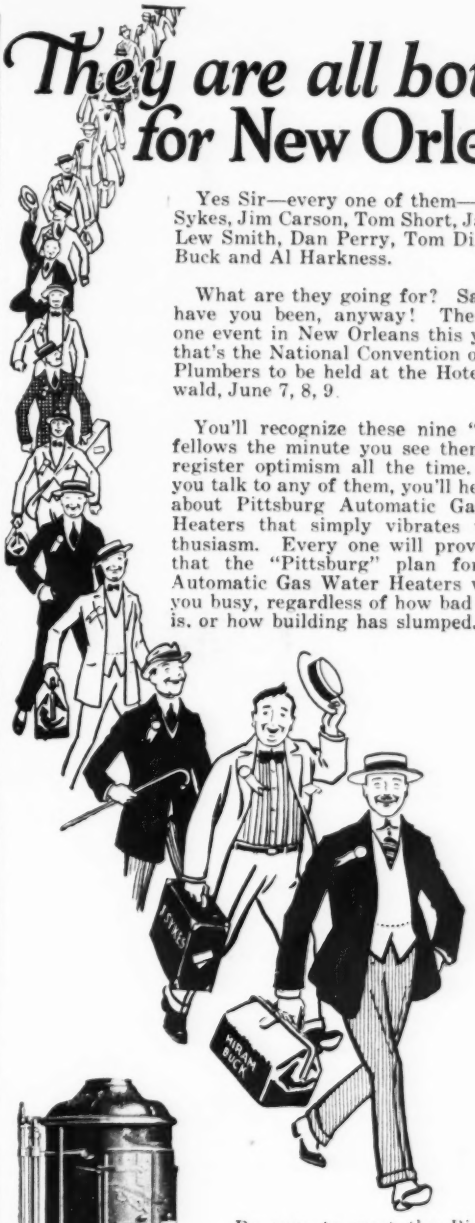
Architects Fugard & Knapp, 64 East Van Buren Street, are drawing plans for a $2,000,000 office, store and shop building to be erected at 4738-4754 Sheridan Road for H. Emmerman. The building will contain 34 offices, 21 stores and 40 shops.

Indiana

Indianapolis Building Trades' Strike Ends.

The strike of the building trades unions, which has been in effect in Indianapolis since April 15th, was called off Saturday afternoon, May 21st, when the Building Contractor's Association of Indianapolis, meeting with representatives of all locals in the Marion County Building Trades Council, agreed on an 8 to 12½ per cent reduction offered by the labor organizations and reached an agreement with electrical workers to arbitrate a new wage scale. At a meeting of the Building Trades Council immediately following the conference with the contractors, Charles Kern, president, issued an order for members of all crafts to return to work Monday morning. Between 3,500 and 4,000 building trades workers have been involved in the strike, which was called when the contractors' association ordered wage reductions ranging from 15 to 25 per cent.

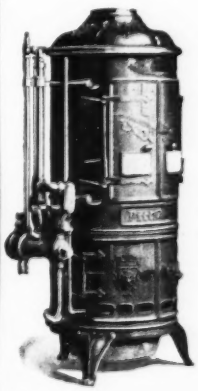
They are all bound for New Orleans



Yes Sir—every one of them—J. Henry Sykes, Jim Carson, Tom Short, Jack Barr, Lew Smith, Dan Perry, Tom Dix, Hiram Buck and Al Harkness.

What are they going for? Say, where have you been, anyway! There's only one event in New Orleans this year, and that's the National Convention of Master Plumbers to be held at the Hotel Grunewald, June 7, 8, 9.

You'll recognize these nine "regular" fellows the minute you see them. They register optimism all the time. And if you talk to any of them, you'll hear a line about Pittsburg Automatic Gas Water Heaters that simply vibrates with enthusiasm. Every one will prove to you that the "Pittsburg" plan for selling Automatic Gas Water Heaters will keep you busy, regardless of how bad business is, or how building has slumped.

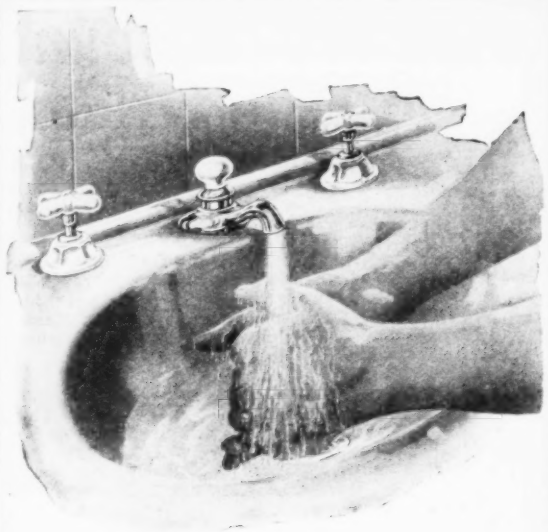


Be sure to meet the Big Nine. And if one of them invites you to walk over to the Pittsburg Water Heater Company's display at Booth 18, go along. It will pay you.

Pittsburg Water Heater Company
Pittsburgh, Pa.

MEMBERS
THE NATIONAL
TRADE EXTENSION BUREAU
OF THE
PLUMBING AND HEATING INDUSTRY.
PERMIT NO. REGISTERED

Pittsburg Water Heaters



ONE OUTLET

This Speakman Unit Fixture Makes it Easy to Wash in Running Water

Everyone prefers to wash in running water —it's the clean—sanitary way. However, it is convenient only when the lavatory is equipped with a one outlet fixture—Speakman Unit or Unit Acto.

The Speakman Unit Fixture is shown.

It fits stock lavatories drilled for standing waste and two cocks. No special drilling.

The Speakman Unit Acto Fixture also fits stock lavatories—those drilled for cocks and with chain stay hole through slab back of overflow.

The Unit Acto Fixture is equipped with the Acto-Pop-Up Waste—the plug that stays put.

Office Buildings, Apartment Houses, Hotels and Residences are good prospects for Unit and Unit Acto fixtures.

AND DON'T FORGET

Wherever you can, put a shower over every bath-tub.

We'll send you a supply of stickers in two colors suggesting this. Put them on your mail. Also if you need another supply of folders on Speakman Products let us know.

SPEAKMAN COMPANY
Wilmington, Delaware

SPEAKMAN SHOWERS

Wash and Bathe in Running Water

Seven unions, including the plumbers, steamfitters, iron workers, hoisting engineers, lathers, cement finishers and asbestos workers have agreed to accept a contractors' proposal for a reduction of 10 cents an hour. Carpenters and sheet metal workers have accepted 8 per cent reductions. Bricklayers and hod carriers, on the expiration of their contracts, May 1, signed agreements embodying reductions of 8 per cent. The plumbers returned to work Monday and the steamfitters resumed their work Tuesday.

Commenting on the wage controversy settlement, Mr. Kern said that while members of the building trades unions still feel the reduction was not called for, on the whole they are satisfied with the outcome. "The building crafts men still feel some resentment at the decrease," he said, "but if, as the contractors say, it will cause a stimulation in building operations, we will be satisfied. If the public now will not confine building operations to the last five months of the year, the building tradesmen will have steady employment, and that is what we are working for.

T. B. Hatfield, president of the contractors' association, expressed the satisfaction of the contractors. "We believe there will be a great stimulation in the building business," he said. "Between $4,000,000 and $6,000,000 worth of work has been held up by the strike, and the contractors will want to begin work immediately."

Other Cities in the State.

Hipskind & Co., of Wabash, have received the contract for the installation of a heating system in a new high school building at Dunkirk, the firm's bid being $11,607.

Joseph P. Martin, of Fort Wayne, has been awarded the contract for the installation of plumbing and heating systems in a new fire station that is to be erected in that city at a cost of $17,000.

The National Heating & Ventilating Co., of Indianapolis, has received the heating and plumbing contracts on a new school in Hancock county.

Kentucky

Louisville and Vicinity.

Business conditions at present are fair with the master plumbers and the general opinion is that they are improving right along. There is a great deal of building being done right at present and a fair amount of orders are coming in.

Journeymen plumbers are threatening a strike, demanding an increase in wages at present, and there has been a good deal of discussion over the matter. The general feeling is that the time is ripe for a lowering of wages rather than an increase, for the public has been waiting for some time for a decrease in prices. The master plumbers feel that a reduction in wages, which would mean a reduction in prices, would open up to a considerable extent and improve business in general.

A committee of the Louisville Master Plumbers' Association empowered to deal with the journeyman plumbers' union representatives, has given notice that the proposed new wage scale will not be granted. The master plumbers have agreed to retain the present wage.

Reports of the state convention at Covington, May 9th-11th, were given by W. H. Matlack, secretary-treasurer; Jacob Isaacs, John Fleck, Joseph Roehrig, M. E. Burke and Tom Garvey at a meeting last week of the Louisville Master Plumbers' Association. It was decided that any member affiliated with the state organization desiring to attend would be given credentials as a delegate to the convention in New Orleans, June 7th-9th, of the National Association of Master Plumbers.

G. W. Schardein, secretary of the F. S. Schardein & Sons, said that the last week had seen a fair increase in business. Things were moving at a comfortable rate of speed, he said, and that there was no room for a kick as to conditions. Plumbing in general has been good and has shown a slight increase, although a temporary slump is looked for if the journeymen strike as they propose. This condition would be adjusted soon, however, according to Mr. Schardein, and the slump would not be of long duration.

Sam Matlack, son of W. H. Matlack, is recovering from an explosion of a valve on a tank of ammonia, for a time it being feared that his eyesight would be impaired.

Pennsylvania

Philadelphia and Vicinity.

The Building Trades Employers' Association, a young live-wire organization, has been consolidated with the Builders' Exchange, an old Philadelphia institution. This consolidation took place on April 19th, when both bodies met independently and unanimously voted to pool interests, and it is hoped by the many master plumbers and steam fitters who are members of either or both associations that the new association, called the Philadelphia Builders' Exchange and Employers' Association, will prove a success.

Heretofore, the Builders' Exchange was inclined to favor the unions, while the younger association felt that the trade unions should be curbed, and it is thought that the two forces combined will travel the middle path, fair to and with labor, without allowing unions to dictate. This is clearly illustrated by the aims of the organization which is announced to be as follows:

"The objects of this association shall be to encourage and protect the building interests in the city and vicinity of Philadelphia; to inculcate just and equitable principles; establish and maintain uniformity in commercial usages; to acquire, preserve and disseminate valuable business information, and to avoid and adjust, as far as practicable, the controversies and misunderstandings which are apt to arise between employers and employes and between individuals engaged in the building industry, to the end that members of this association co-operate for the general good and that such membership may be an assurance to the public of skill, honorable reputation and probity."

"The association proposes further to promote fair dealings and harmonious relations between employers and employes, to emphasize in all proper ways the right of the employer to determine what labor he shall employ, to oppose all agreements tending to impair such right, to oppose in lawful ways the sympathetic strike, and the use of the strike, except as an agency for the adjustment of disputes between an employer and his own employes, to improve working conditions among employes, to encourage the amicable adjustment of labor controversies, to avert jurisdictional disputes between trades and to oppose the violation of labor agreements; and to further the common interests of the building industry by such other lawful means as may appear to be proper."

The Master Plumbers' Association has endorsed the recommendation of the Committee of Twenty-Three, and as any number of good journeymen plumbers are seeking work at 90 cents per hour, the association recommends that to stimulate work and bring about the resumption of orders, that the masters spread the news to the public, announcing that wages have dropped to 90 cents per hour.

All the other building trades in the city, most of which had formerly been almost solidly signed up with unions, with contracts expiring May 1st, acted in accord with the resolution passed by the building trades, described in "Domestic Engineering" May 14th, and did not renew agreements with the associated trades and consequently, a number of the union men are out on strike.

The report at this time is as follows:

Plumbing and steam fitting trades: No trouble whatever to man all the jobs at the new rate.

Bricklayers: Union men out, masters will proceed with work without agreement May 18th at the new rate.

Carpenters: Union men out, but enough mechanics secured to fill all demands.

Cement workers: Union men out, but work proceeding smoothly.

Elevator constructors: Service men retained; others out; reduction refused.

Painters: Union men out, but work proceeding without difficulty.

Paperhangers: Union men out, but work going on.

Plasterers: Union men out, work proceeding without much difficulty.

Sheet metal workers: Union men out, ranks filled with new men at the new rate.

Sprinkler workers: Voluntarily accepted new rate; work is going on.

Master plumbers throughout the city are very much aroused by an ordinance now before the council, which would author-

Does advertising sell

Jones the Plumber wrote Bill

Dear Bill:

Do you ever stop to realize that advertising does not sell; that it only creates interest.

Take Kenney Shower advertising, it will not help you unless you have a stock of showers on hand and a display that tells your customers you have them.

Then you are in a position to make sales.

Yours,

J. J.

Write for Kenney Shower Sales Plans. They are in keeping with the Trade Extension idea. Over a thousand merchant plumbers are now making extra profits through the aid of these plans.

The Curtainless Shower Company

507 Fifth Avenue New York

Flushed Instantly
Positive Water Seal
Big Saving In Water

Two powerful converging jets of water insure immediate, thorough flush in Watrous Duojet Closets. There is no delay in action, a continuous, positive water seal, and a big economy in water.

Whether in a small or large installation, this saving of two to three gallons of water on each flushing is a big consideration in the aggregate—a saving well worth making.

WATROUS PATENT PLUMBING FIXTURES AND DUOJET WATER CLOSETS

have no crevices, ledges or zig zag passages to clog, or foul. They are a scientific and sanitary plumbing development of the highest order.

Send for our catalog describing Watrous Flushing Valves, Urinals, Self-Closing Cocks, Liquid Soap Fixtures, Drinking Fountains, etc.

The Imperial Brass Mfg. Co.
510 S. Racine Ave., Chicago, Ill.

Pageant of Progress Exposition
At Chicago, $5,000,000 Municipal Pier,
July 30 to August 14

IMPERIAL WATROUS PRODUCTS

ize the city to take over the water services from the main to the curb, which are now privately owned and maintained. The general opinion is that it will be an unfair burden on the taxpayer, and that the political management of the Bureau of Water will not be able to handle this work efficiently, and further, the opinion is expressed that it maybe the first step toward paving the way for a sale of the waterworks. On the other hand, there are many masters who feel that they would welcome this feature rather than being annoyed with the trouble and risk of street work.

The last three weeks have been the dullest months in the history of the plumbing business in Philadelphia. Nearly all shops are running with greatly reduced forces, and very little work is actually started, although a decided improvement can be seen since May 1st.

Pittsburgh and Vicinity.

The Pittsburgh School Board recently opened bids for repairs to the heating and plumbing systems in the following schools: McKee, plumbing, Leo. B. Buerkle, lowest bidder; Milroy, heating, Mahoning Foundry Co., low bidder; Milroy, plumbing, Leo. B. Buerkle, low bidder; Fifth Avenue High school, plumbing, E. F. Cass Plumbing Co., low bidder.

The Moss & Blakely Co. was the low bidder on a school building to be erected at West Homestead, Pa.

The Geo. H. Soeffel Co. was the low bidder on the new high school building to be erected at Dormont Borough, Pittsburgh.

Bids were opened on a public comfort station to be erected at Boquet Street near Forbes Street, and the L. B. Buerkle Co. was low bidder.

C. D. Beckett has been awarded the plumbing on the restaurant building to be remodeled for the Black Co., Sixth Avenue.

S. S. White has been awarded the plumbing contract on the remodeling of stores at Fourth and Wood Streets for the United Cigar Stores Co.

The Knoxville Plumbing Co. has the plumbing contract on the Bank of Commerce Building on Smithfield Street.

John A. Galbreath has been awarded the plumbing in connection with the bath house at the city swimming pool, Schenley Park.

T. P. Malone, of Wilkes-Barre, has been awarded the plumbing contract on the Sugar Notch school building.

Louis Demharter, of Brackenridge has been awarded the plumbing on the parochial school at Natrona, and A. M. Schroyer of New Kensington, the heating contract.

New York

New York and Vicinity.

Through an alliance recently brought about between Columbia University and the Presbyterian Hospital, both of this city, we are assured the erection of the much discussed Medical Center will be under-way in the near future. The new institution will be of vast proportions, the whole when completed to comprise a large miscellaneous ward, hospital; a medical school; and buildings for research and laboratory purposes. The project will occupy the property formerly used for the baseball park of the Yankees at 168th Street and Broadway, and the land investment is $15,000,000. The contemplated improvements will cost in the neighborhood of fifteen to twenty millions. No architect has been selected.

Jacob Amron, builder, will improve the south-east corner of 7th Avenue and 48th Street with a twelve-story mercantile structure planned especially to provide suitable spaces, light and other essential accommodations for firms in the film producing industry. Mr. Amron is proprietor of the Marlborough Hotel on Broadway.

All of the properties, business affairs and existing operations of the late George Backer, deceased, will be taken over by Samuel Levy, a member of the law firm of Arnstein & Levy. Mr. Levy has been a close friend of the deceased builder for many years and has been his close business associate and advisor since Mr. Backer began operations on a large scale fifteen years ago. The remodelled carrying concern will be under the direct supervision of Mr. Backer's son, William Backer. The younger Mr. Backer is an engineer, a recent graduate of Cornell University.

Architect Henry O. Chapman has plans in preparation for the limestone and Knoxville marble structure for the U. S. Mortgage and Trust Co. to be located at the northwest corner of Madison Avenue and 74th Street, this city. The lot is 50x100 ft. Contracts will be awarded shortly.

Of interest to the plumbing and heating trades of New York, is the warning issued lately by Magistrate Brough in the Municipal Term Court. The Magistrate said: "From now on landlords who persist in disregarding the orders of the Tenement House Department and the Board of Health to repair violations of the sanitary code, need expect no suspension of sentence from me. Many of these landlords are quick to increase rents, but are slow to remove violations of the code . . . . . the tenants have had to suffer the danger of leaky roofs, broken walls, unsanitary lavatories, leaky plumbing, and other inconvenient conditions.

Westchester County Association Holds Monthly Meeting.

The Westchester County (N. Y.) Association of Master Plumbers and Steamfitters held its regular monthly meeting at the Motor Inn Farm, Mount Kisco, N. Y. on Thursday evening, May 19. More than a hundred members motored in from all corners of Westchester County and sat down to a dinner in the old farmhouse. Between courses patriotic and popular songs were sung and splendid chorus work was shown. The speaker of the occasion was Daniel L. Hanson of the National Trade Extension Bureau, who spoke on the Relation of Profitable Sales, Increased by Trade Extension Bureau methods, and the Cost of operating business.

"Salesmanship can be defined as getting thoroughly convinced of the value of the commodity one handles for the prospective customer," said Mr. Hanson. "You know a bathroom would be the best thing in the world for Robert Eames, of your town. Having sold yourself this idea as it bears on Robert Eames, it is simply a matter of explaining the thing to Eames. That is all there is to salesmanship—no hypnotism, no ledgerdemain, no ouija board practice. It is a man's game and there is not one of us who can't make good on it—if we will."

A flat rate of pay for the plumbing inspector of $5 per inspection has been recommended by a committee appointed by the mayor of the city of South Portland to consider the matter. The committee found that it cost the city last year $607 and that the inspector was called upon to pass on jobs and issue permits just 113 times and they believed this was too high. The report was accepted by the city council.

John Shay, of Bangor, is installing plumbing in a new house at Lincoln for the E. A. Weatherbee Co. He recently has completed the plumbing in the Ballard Hill school in Lincoln.

Savannah.

It appears that Savannah is upon the eve of a building revival, after a considerable lull. Three handsome homes will be built soon, in fact work already has commenced on them, the most pretentious being that for W. W. Gordon, in Gordonston, an attractive and exclusive suburb. Olaf Otto has the general contract, and the plumbing will be done by the Peerless Plumbing & Heating Co. The Carson Construction Co. has the contract for two houses to be built in Ardsley Park for the Levy brothers, Morton and Signey. Seckinger & Garwes will do the plumbing. This last named firm has recently completed a number of plumbing jobs and is working on others, here enumerated: Lindsay & Morgan furniture store, four stories; four bunaglows for the City Investment Co.; residence for C. K. Lawrence, Port Wentworth; bungalow for W. H. Sapp, Forty-first Street and Waters Avenue; radio station at Tybee; plumbing and heating for Dr. F. M. Turner, Fifty-second and Abercorn Streets; plumbing for W. J. Pierpoint, at Isle of Hope; plumbing for R. J. Whalley.

Win With The Cleveland!

Your success as a master plumber depends largely upon the character of fixtures you install and their ability to serve your customers.

The
Cleveland Flush Valve

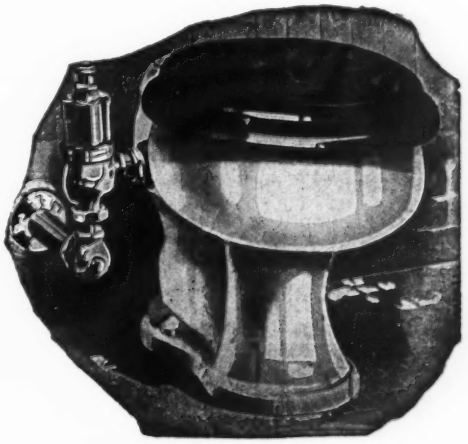
gives the kind of service that reflects credit upon the master plumber and assures repeat orders.

Install the CLEVELAND on your new work and use it for replacement on old jobs that are not satisfactory.

Fits any bowl and is adjustable to all standard equipment.

Push button, lever or oscillating handle.

Guaranteed for Five Years



Ask Your Jobber

Cleveland Flush Meter Co.

Noble Court and West 2nd Street, Cleveland, Ohio

JOHN MADDOCK & SONS
COAL PORT
TRENTON, N.J.

WE are headquarters for all kinds of small sanitary plumbing ware—such as Basins, Urinals, Short Hoppers, etc.

Our lines are complete. Prompt shipments assured.

John Maddock & Sons
Trenton, New Jersey

Headquarters for the 39th Annual Convention of the National Association of Master Plumbers will be at

Hotel Grunewald
New Orleans, La.

Strictly modern, twelve-story fireproof hotel noted for its splendid service. Light, airy, comfortable rooms—most of them with baths.

Adequate accommodations for both convention and exhibits.

Have you made your reservation? If not, better do so now.

George L. Webre, *Manager*

Massachusetts

Boston and Vicinity.

The city of Boston has advertised for bids for installing a heating and ventilating system in a new elementary school building in the East Boston district.

A new comfort station is nearing completion at Greenfield and will be ready for the early summer autoists.

Other Cities in the State.

Austin McRae, who conducts a plumbing and heating business at Marlboro, recently has moved to 26 Main Street and will carry a line of electric appliances along with his plumbing and heating goods.

Plumbing Inspector William Porter, of Westfield, has announced his intention of seeing to it that the plumbing regulations of the town are obeyed. Complaints have been made, Mr. Porter says, that unlicensed men are working both as journeymen and masters, and he proposes to stop it.

A similar campaign is being waged in Holyoke by Plumbing Inspector Frank Avery. Mr. Avery appeared in the district court recently and obtained a warrant for a man who was alleged to be doing plumbing without a license.

Ohio

Slater & Metcalf, Dayton, has been awarded the plumbing and heating contract on the National Home for D. V. S. to be erected in that city by the government and also in a similar home which is to be erected in Danville, Ill.

The plumbing firm of Lupton & Alexander, Dayton, has changed its name to Lupton, Hill & Lupton, but will remain at the old address, Davis and Linden Avenues.

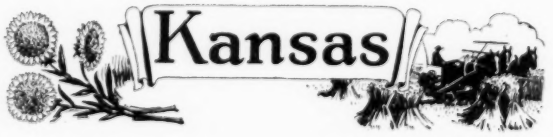
Minnesota

St. Paul.

Fifty-three permits for work valued at $14,782 were issued to St. Paul plumbers during the week ending May 11. Most of the contracts were for the installation of heating and bathroom equipment in small dwellings.

Among the larger contracts were those awarded to: G. W. Anderson, Nels Nelson, C. Sauter, W. L. Neihart, G. P. McGuiggan, L. Pothen, L. A. Peters, Edward Healy and J. P. Adamson.

Prospects for extensive building operations still continue bright, according to leading St. Paul contractors. During the week ending May 11, the city building inspector issued 191 permits for work estimated to cost $218,321. About 70 per cent of these were for the construction of small dwellings or the improvement of existing residences.



Kansas

A. J. Bachofer, Salina, has recently secured the plumbing contract on Dr. Perry Lloyd's new bungalow, H. A. Hickie's garage and Lee Webber's new residence.

David Hill, Salina, has recently been awarded the plumbing, heating and ventilating contracts on the New Roosevelt School now under construction and on the New Masonic Temple.

The Home Plumbing Co., Salina, is installing plumbing in new residences for H. A. Curtis, Ed Perkins, George Rose, Z. C. Milligan and J. E. Sprodley.

Missouri

The Kansas City Plumbing Situation.

From reports brought to the meetings of the Master Plumbers' Association of Kansas City from neighboring towns and other states, it would seem that Kansas City is rather more fortunate in regard to the proportion of journeyman plumbers who are now employed than most of them. As a speaker at a recent meeting put it—"While the plumbers have been talking about possible strikes and shutouts, the public has already struck, and will not resume business until they can buy material and labor on a rising market, instead of a falling one."

But while a large proportion of the journeymen are idle in other towns, practically all of them are at work here. E. D. Hornbrook, president of the Master Plumbers' Association, thinks that Kansas City is peculiarly fortunate in that it has now in course of construction the five big buildings which are the outstanding feature of building activities here at this time. These buildings are the Federal Reserve Bank building, the Kansas City Club building, the Pantages and the New Orpheum theatre buildings, and the Corn Products building in North Kansas City.

While this condition takes care of the journeymen, most of the master plumbers are forced to await the opening up of business, and are hoping for a speedy adjustment of differences in the building world. They, and everybody concerned, are interested vitally in the new scale of wages to be paid to the journeymen plumbers and the fitters after the first of July, the date upon which the present contract as to wages expires.

While all parties agree that there must be a scaling down of prices and wages, the problem which puzzles is as to just how much reduction there shall be in each case, so that there may be an equitable readjustment. In order that the association might be guided in its deliberations by the facts in the case, rather than by theories and conjectures, W. C. Green, the secretary, at the request of the members, prepared tables showing the cost of various articles that enter into the problem, and also the wage scale that has been paid here during the years since 1913.

These tables were studied with much interest, and the facts revealed were the basis of animated discussions. The reductions most noted, were those of food from the peak of 387, as compared to 100 in 1913, down to 150, and that of all commodities from 272 to 167. The other facts revealed, which attracted attention, were in regard to building material, which still stands at 222, and the wage scale, which is still at the peak, 180. Other interesting comparisons were found which will be revealed by a study of the tables, which are printed herewith:

GOVERNMENT TABLE OF PRICES OF COMMODITIES 1913-1920.

Date	Farm Products	Food, Etc.	Clothing	Fuel & Lighting	Metal & Products	Building Material	Chemicals & Drugs	House Furnishings	Miscellaneous	All Commodities
1913	100	100	100	100	100	100	100	100	100	100
1914	103	103	98	96	87	97	101	99	99	100
1915	105	104	100	93	97	94	114	99	99	100
1916	122	126	128	119	148	101	159	115	120	124
1917	189	176	181	175	208	124	198	144	155	176
1918	220	189	239	163	181	151	221	196	193	196
1919	234	210	261	173	161	192	179	236	217	212
1920	218	236	302	238	186	308	210	366	236	243
Peek	246	287	356	284	208	341	222	371	247	272
Jan.	136	162	208	228	152	239	182	281	190	177
Feb.	129	150	198	218	146	222	178	277	180	167

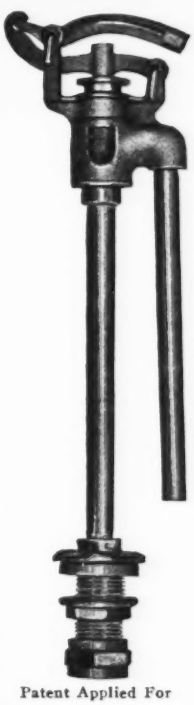
This table was compiled from Labor Review, Dept. of Labor, U. S. Government.

TABLE OF WAGES OF PLUMBERS IN KANSAS CITY, MO., 1913-1921.

Year	Plumber	Fitter	Labor	Helper	Plumber	Fitter	Labor	Helper
1913	5.50	5.50	2.50	2.75	100	100	100	100
1914	6.00	6.00	2.60	3.00	109	109	104	109
1915	6.00	6.00	3.00	3.00	109	109	120	109
1916	6.00	6.00	3.20	3.00	109	109	128	109
1917	6.00	6.00	3.60	3.40	109	109	144	124
1918	7.00	7.00	4.00	3.60	127	127	160	131
1919	8.00	8.00	4.80	4.00	145	145	192	146
1920	10.00	10.00	6.40	4.80	180	180	256	176
1921	10.00	10.00	6.40	5.50	180	180	256	200

This above table was compiled by W. C. Green, secretary, from the records of the Master Plumbers' Association, of Kansas City, Mo.

The master plumbers and the journeymen plumbers have a joint committee of twenty members which has worked harmoniously for years in the solution of their problems. It is confidently expected that the two organizations will get together soon, and have a report to make to the public which



Patent Applied For

"Burlington" Ball Cock

Closet tanks equipped with the "Burlington" Ball Cock cannot fail to give satisfactory service.

In construction, the "Burlington" is simplicity itself. Nothing to get out of order. Durable. Made of high grade metal by expert workmen.

Elevated or submerged pattern.

Write for descriptive matter of "Burlington" Ball Cocks, Flush Valves and Tank Levers.

Burlington Brass Works
BURLINGTON, WIS.

DURIRON *The* Universal Acid Resistant

You wouldn't line a boiler with common brick!

Why install drain lines that must carry acids, of material that will corrode and fail?

Again, why go only half way, and use material that may resist some acids, but not all?

There is but one perfect material for drain lines carrying acids, or water containing acids—Duriron, the Universal Acid Resistant.

It is a cast metal alloy—strong—easily installed, and absolutely permanent.

Let us send you Bulletin No. 126

DURIRON DRAIN PIPE AND SANITARY FITTINGS

a message to
The Owner, Architect and Sanitary Engineer

The Duriron Company, Dayton Ohio

New York
Cleveland
Atlanta
Chicago
Pittsburgh
Montreal
Denver
Salt Lake City
San Francisco

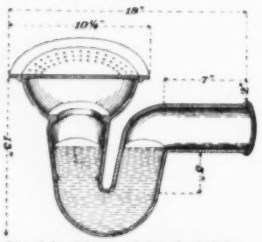
"Somerville"

Soil Pipe and Fittings

Cost no more than the ordinary kind

EXCELLO

Deep Seal Floor Drain Less Cleanout



No. 36. 3-in. Plain, Water Seal 5-in.
No. 37. 4-in. Plain, Water Seal 5-in.
No. 38. 3-in. Back Water, Water Seal 5-in.
No. 39. 4-in. Back Water, Water Seal 6-in.

THIS style of drain is required in some localities when a cleanout plug is not permitted.

Water seal is exceptionally deep, which acts as good protection against breaking of water seal by evaporation.

Furnished with polished brass or nickel plated strainers.

Measurements shown are for the 3-in. drain. 4-in. drain is 12½-in. across top, 17-in. deep and 22-in. long.

We also manufacture full line of Soil Pipe Fittings and other Plumbing Iron Products.
See your jobber

The COOPER FOUNDRY CO., Atchison, Kansas

will be altogether satisfactory. Because of this and other reasons there is a feeling of optimism among the members of the trade generally.

M. H. Woodling, of the Woodling Plumbing & Heating Co., gave the following as his reasons why he expected a very decided improvement in local conditions in the trade in the next sixty or ninety days:

1. The getting together of the Builders' Association and the Building Trades Council, and their agreement to arbitrate differences. This, Mr. Woodling thinks, assures us against strikes and lockouts throughout the year, and thus stabilizes matters. Until after the building crafts wage and material conference is held no definite estimates can be made on prices, and, therefore, no immediate movements will be made.

2. The money market is not so tight as it has been, and there are indications that conditions will continue to improve. A new element in making money easier will be the going into effect in June of the new Missouri law relating to the taxation of real estate mortgages, or rather their exemption from taxation. Heretofore the state levied a tax upon the full value of all real estate, whether incumbered or not. It further levied a tax upon the money loaned upon the property. The effect was double taxation. The new law exempts the money, and requires that all mortgages must be filed, and a small fee paid in order to be collectable. It is believed that the effect will be to make rates on loans on real estate lower, and thus encourage building.

3. The ever increasing demand for all kinds of buildings will ultimately lead to the erection of structures to meet the needs of the people. With the adjustment of prices and wages, the prospects are, Mr. Woodling thinks, that there will be a steady increase in all kinds of building activities.

California

San Francisco and Vicinity.

Practically all of the master plumbers are busy on jobs, and a large percentage of the journeymen in San Francisco is working, but a situation is threatening by which all building operations may be tied up. Because of a reduction of wages amounting to seven and a half per cent for some crafts in the building industry and because of other disagreement as to working conditions between the associated employers and the building trades union, the latter are threatening to tie up all operations, and this will, of course, stop the progress of much work ready for plumbing installation, although the plumbers' union has no grievance.

The reduction of wages has been ordered by a board of arbitration selected by both sides, and if a strike occurs and building operations are tied up, it is feared that both journeymen and master plumbers will suffer heavily, as there is a large amount of building in progress, especially in the downtown section.

Los Angeles.

A representative of a large plumbing house in Los Angeles recently made the statement that the bath rooms of this city were among the best in the country. Many of the larger homes are provided with private swimming pools, and the number of up-to-date bath rooms grows larger every day.

Lohman Bros. were awarded the contract and will install plumbing in the new University Club building on Hope Street, between Sixth and Seventh Streets. The plumbing in the Security Trust & Savings Bank building to be erected at Cahuenga Avenue and Hollywood Boulevard will also be installed by this firm.

Architect Albert C. Martin, 430 Higgins Building, is taking bids for plumbing, wiring and heating for the Class "A" warehouse to be erected at Seventh and Mill Streets for the Walnut Growers' Association and also for the two new office floors in the Consolidated Realty Bldg.

Thomas Haverty Co. has been awarded the contract for installing heating and sprinkling systems in the Security Trust & Savings Bank building to be erected at Cahuenga Avenue and Hollywood Boulevard.

The Venice Sanitary Plumbing Co. will soon occupy a one-story brick building 30x90 ft., being erected on Zephyr Avenue, Venice. The building will cost $10,000.

The Los Angeles Board of Education has commissioned the following architects to prepare plans for new schools:

Hunt & Burns, 701 Laughlin Building, high school building at Fourth and Fickett Streets, cost $324,000.

T. Beverley Keim, Jr., 716 Haas Building, twelve-room grade school building for Albion Street school site, cost $84,000.

Parker O. Wright, 1133 Central Building, new building, site not determined for Alpine Street site, cost $70,000.

Frederick J. Soper, 1122 Story building, ten-room building Fifteenth Street school site, cost $80,000.

Thomas F. Power, 307 Tajo Building, new building Santa Fe Avenue school site, cost $84,000.

New building for Hollywood Intermediate school. Plans will be prepared in office of W. E. Record, business manager of the board. Architect E. H. Cline in charge, building is to cost about $280,000.

Three large additions are to be added to the hotel building at Hollywood Boulevard and Orange Drive. The additions include 140 guest rooms and 112 baths.

Architect John J. Frauenfelter, 1116 Story Building, will prepare plans for the first unit of the new Y. W. C. A. buildings to be erected on Figueroa Street, between Ninth and Tenth Streets. It will be six stories, and will contain a plunge 90x30 ft., Turkish baths, shower rooms, well for water supply and sterilization plant.

A three-story building to cost $305,000, to house the offices and laboratories of the Union Oil Co., will be erected in the Los Angeles harbor district adjoining the company's new refinery.

A bond issue to expend between $175,000 and $200,000 on improvements to the municipal water system is planned for El Centro.

Architects Walker & Eisen, Pacific Finance Building, are preparing plans for a two-story residence to be erected on Rossmore Avenue, between Third and Fourth Streets, for E. P. Thom. The building will contain eleven rooms.

Architect H. L. Pierce, 919 Wright & Callender Building, has prepared plans for a large residence to be erected on the estate of W. E. Bush, near Covina.

Additions are to be built to the Van Nuys high school, and a new two-story building erected at an aggregate cost of $150,000. Bids will be taken on separate contracts by the board of education.

Other Cities in the State.

R. Gardner, of Kerman, is improving his plumbing shop by having a larger display platform arranged in the front part of the store. He will use the display window in showing modern bathroom equipment. The interior is also being refitted.

Final plans for erection of the proposed $365,000 Porterville high school building hinged on the result of a bond election for that amount May 20. Preliminary plans submitted by Coats & Travers, Fresno architects, were tentatively adopted by the board of education.

A three-story, $100,000 hotel is to be erected in Gilroy by George Milias.

The Fink & Schindler Co., contractors, have been awarded plumbing and other contracts for improvements at the Fairmont Hotel, San Francisco.

Alfred Reinberg, 1910 Tenth Street, Berkeley, has asked the city council to reclassify his land in accordance with the zoning laws, so that he can build a steam bath emporium on the premises.

Alameda county supervisors will receive bids until June 6th for a supplement water distributing system to the children's building and Nurses' cottage at Arroyo sanitarium, Livermore.

Separate bids will be received on plumbing, heating, ventilating, etc., on improvements and additions at the Hawthorne, Deway, Highland and Webster schools, Oakland. Bids must be in the hands of the board of education June 6th.

It has been reported that the Uptown Association, Oakland, has been making an investigation of the comfort station problem as it is being solved in other cities of the country and in Europe. A report has been prepared and the association expects to initiate action toward equipping Oakland with comfort stations in the near future. The association recommends that the first station be built at Telegraph Avenue and Broadway. It recommends that at least two stations be constructed at once in the downtown district.

Plans have been completed for erection of New Roosevelt hospital, 572 Morongo Avenue North, Pasadena. Cottages will be added from time to time.

Construction is to commence on the Y. W. C. A. building in Pasadena in the early part of June, and bids will soon be called for. The building is to contain a swimming pool.

BAD NEWS

GAS FUMES KILL BANK MAN AS HE WORKS ON CAR

Making use of a bank holiday yesterday to work on his automobile, William Ford, 44 years old, 710 North Central avenue, an employe of the Federal Reserve bank, was killed by gas fumes in his garage at 739 North Central avenue. When Mr. Ford failed to return home for luncheon Mrs. Ford went to the garage and found her husband's body beneath the machine.

From Chicago Tribune, 2-22-21

Are you responsible for such conditions existing in your city?

INSTALL DEHN'S PEERLESSS GARAGE DRAINAGE SYSTEM TO AVOID SIMILAR EXPERIENCES

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Established 1897

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THE QUALITY GOODS

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JOSAM DOUBLE DRAINAGE DRAINS
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Catalog on request

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It is not hard to interest anybody in a good dividend-paying proposition like the Elliott Combination Water Heater and Gas Stove Top.

Heats water with gas while cooking that would otherwise be wasted. Adapted to any gas range and can be used with oil stoves.

Be the first man in your town to handle the ELLIOTT.

State Rights Offered to Reliable Men. Write Now

Elliott Water Heater Co., Inc.
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Whenever you install the "O-E" Perfect Heating System (Three in One) your customer not only gets more for his money, but the simplest, most flexible system made.

Let us tell you how to convert **unsatisfactory** steam and hot water jobs into "O-E" "3-in-1" systems. The expense is nominal as compared with results.

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O-E Specialty Manufacturing Co.
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square feet of floor space in our new plant, for the sole purpose of giving our customers the utmost in—SERVICE

Write for monthly price guide

National Plumbing & Heating Supply Co.
201-239 E. 63rd Street Chicago, Illinois

Washington

Seattle.

The number of contracts being let for plumbing and heating in the cites of the Northwest is weekly showing an increase, and this increase is expected to continue until late in the summer. Especially is this condition true in Seattle, where, during the past few weeks, bids have been called and general contracts awarded on building jobs of considerable importance.

In a majority of these cases, the contracts for plumbing and heating have not been awarded but are expected to be, within the next few weeks. These jobs, naturally, are of interest to the larger shops, but in the meantime, the smaller outlying shops are also reporting an increasing volume of new business, emanating from increasing residence construction, repairs to existing structures and the like. Residence construction in Seattle and Tacoma, particulariy, during the latter part of April and the first of May registered enormous increases, and more optimistic authorities on constructional activities assert that the residence building boom has barely started.

A few of the larger contracts on which the awards for both plumbing and heating remain to be made as follows:

P. J. Lavan, 1319 Eighth Avenue, submitted low figure on both plumbing and heating of the School of Mines, University of Washington, his tender being $11,213.

Roosevelt School estimated to cost $1,250,000. The plumbing and heating on this job will approximate the expenditure of about $200,000.

The Hellenthal Plumbing & Heating Co., 90 University Way, submitted the low figure for the College Club, at $23,000, the contract to include both plumbing and heating.

Other contracts to be let shortly include a $400,000 apartment house for the Victoria Investment Company; a $60,000 apartment for William Carroll, a $450,000 business block for Louisa Frye, Inc., to be occupied by the Graunbaum Furniture Co. and a $450,000 bank building to be built for the Seattle National Bank.

The Chamber of Commerce and Commercial Club of Seattle has initiated a movement for the erection in the city of a gigantic hotel structure, to cost approximately $3,200,000. The building will be 12 stories high, and contain 609 rooms, each equipped with private bath and shower facilities. Of the sum required, $1,500,000 has been pledged, and a drive for the remaining $1,700,000 will be undertaken immediately. Tentative plans for the building have been prepared by R. C. Reamer, architect, formerly with the Yellowstone National Park Company. Efforts to secure a hotel of adequate size to serve the needs of the city have been under way for several years, but the present move is expected to bring unqualified success. A site has been selected at Fifth and University Streets, covering an entire block. The Metropolitan Building Company, owners of five of the large business buildings in the city, will undertake the erection of the structure, and will form an hotel company to carry on the work. C. D. Stimson of the Chamber of Commerce, is chairman of the hotel committee of the Chamber of Commerce, and will personally subscribe $100,000 for the project.

Bids were recently opened by the School Board for the proposed two-story addition to the Broadway High School, to be erected at an aproximate cost of $95,000. Low bidder for the general contract was J. A. McEachem Co. at $67,890. Plans for the plumbing and heating and ventilating work are now under way in the office of School Architect F. A. Naramore, but no date for calling bids has been set.

The Victoria Investment Company will immediately proceed with erection of the proposed community apartment building on Queen Anne Hill, at a cost of $500,000. The structure will be 250x256 ft. in size, and will contain 48 apartments of two, four, five and six rooms each. Architect John Graham, L. C. Smith Bldg., is preparing plans and specifications.

Other Cities in the State.

The North Side Christian Church, Spokane, plans the erection of a $40,000 church building during the summer, according to Rev. H. H. Hubbell, pastor.

Jacobson & Mangrum Co., New York Building, Seattle, recently awarded contract for the proposed new lodge building for the L. O. O. M., announce that plans for the structure have been revised, to permit of a two-story building, 60x120 ft. The

structure will be of concrete, faced with brick. Bids for subcontractors will be called this week.

On the second call for plumbing and heating bids for the girls dormitory in Bellingham, under erection by the State Normal School, Dupar Blythe & Co., of Seattle, received the plumbing award on their bid of $15,252.21. The contract for the heating went to C. A. Richardson of Tacoma, at $11,935. Dupar-Blythe Co. submitted a bid of $13,397 for the heating; University Plumbing & Heating Co., of Seattle, bid $15,560 for plumbing, and Hughes & Cornier, Mount Bernon, bid $15,413.56 on the same work. On the first call for bids, Dupar-Blythe & Co., submitted low bids on both plumbing and heating.

Building activities in Tacoma have taken an upward spurt during the past month, particularly in the matter of new home construction. All through the city, scores of new homes, mostly of the five and six-room type, are being erected, and the building permits for the past month have established new records.

Architects Sutton & Whitney, Tacoma, have been commissioned by the Scottish Rite Masons of Hoquiam to immediately prepare plans for the proposed Scottish Rite Temple to be erected in that city. The structure will be three-stories, fireproof, 105x140 ft., and cost approximately $200,000. Construction of the building will be started early in June.

The Centralia School District recently authorized the issuance of $60,000 in bonds for the erection of the proposed new Lincoln School.

P. Oehler, who has been in the plumbing business with Owen Bros. Hardware Co., has become manager of a new plumbing shop owned by L. D. Oehler at 515 Duryea Street, Raymond. The new business will be operated under the name of the Modern Plumbing Co.

Oregon

Portland.

New building construction in Portland is proceeding somewhat better than anticipated, although the number of large projects is small. New residence construction has been very active all spring, and indications point to a continuance of home building throughout the summer and fall months. Plumbing and heating contractors are not rushed, although the volume of work has held up fairly well during the spring.

W. S. Fleming recently received the plumbing and heating contract on the new Ballou & Wright building to be erected in Portland. The structure will be five stories and basement, 100x100 ft., and cost $130,000.

Architects Claussen & Claussen, Macleay Building, have been commissioned to prepare plans for the $125,000 combination hospital and sanitarium to be built for the Portland Hospital & Benevolent Association. The structure will be two stories and basement, 137x105 ft., of mill construction with brick walls, and will cost $125,000.

The McPherson-Urban Co., recently organized in Portland, have secured a number of contracts since entering the field. Among the contracts already completed is the heating plant in the Butterfield home in Irvington; a heating plant in the Hoffman-Rasmussen apartment building, and several other heating plants in residences throughout the city.

The firm of Houghtaling & Dougan, architects, Elks Club Building, has been selected to prepare plans for the proposed municipal auditorium at The Dalles, Ore. The building will cost $125,000, and will be 100x150 ft. Plans are to be rushed, and general work started as quickly as possible.

Figures issued by the Building Department in Portland indictate that more residence permits have been issued year January 1st to May 1st this year than during the entire year of 1920. Nearly three times as many permits have been issued during the four months of this year as in the first four months of last year. Permits for dwellings aggregating $3,385,935 were granted during the past four months.

Other Cities in the State.

The State Board of Control, Salem, will receive bids until June 2nd for erection of the proposed dormitory building for the State Institute for Feeble Minded, to be built near Salem, at a cost of $50,000. Bids will be received for the general contract, heating and plumbing, and also separate bids for these sub-contracts.

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FLUSH VALVES
TANK TRIMMINGS

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IMMEDIATE DELIVERY
STANDARD AND HIGH PRESSURE
Our High Pressure Glasses have fused ends and are annealed by special process. Try them for highest steam pressures.
We manufacture Automatic Air Valves and Hot Water Thermometers.
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The MARVEL Adjustable Non-syphon Sink Trap is built on up-to-date, substantial lines that assure lasting service. Easily installed. Neat appearing. Cast iron aluminized.
7½ inches over all. 3¼-inch seal. Brass Clean Out.
The MARVEL helps you to make a friend of every customer.
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Detroit Marvel Brass Mfg. Co.
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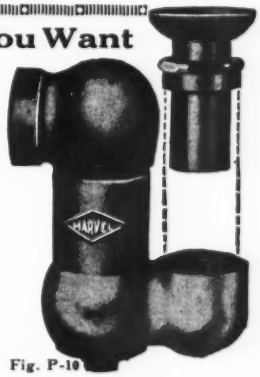

Fig. P-10 Patented

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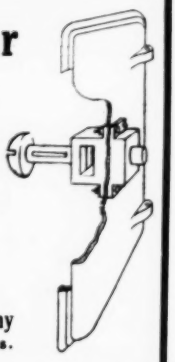
ARCO Boilers and Warm Air Furnaces carried by
CESUCO
Central Supply Co.
Minneapolis, Minn.

The Need of the Hour



Here is a fuel-saver that reduces coal bills 20%. The Z. T. Soot and Gas Consumer is easy to install on any steam or hot water boiler, or hot air furnace.

Produces better combustion. Permits use of cheaper fuel. Holds fire longer.

Generates more heat from coal. Requires less attention to fire.

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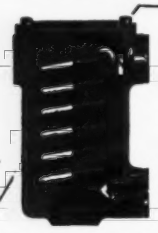

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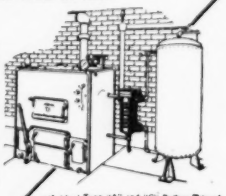
Meets New Requirements

It means no coils in the fire-box to deaden the fire. It assures an even tank temperature whether the fire burns wild or low.

The copper coils easily removable from the Excelso. Can be connected to steam, vapor or hot water boilers; also used for heating with live steam.

Made in five sizes. When used below the water line of steam or vapor boilers, it will heat tanks of from 30 to 120 gal. capacity.

No fitter should overlook this winning proposition. May we send particulars?



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"HAMPSHIRE" PATTERN

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THE HAYDENVILLE COMPANY
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Manufacturers of

Long Screws
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Brass, Steel and Genuine Wrought Iron Nipples, both Standard and Extra Heavy. Sizes ⅛″ to 8″. Furnished either Biggs or Whitworth Standard Threads.

Write for Prices

Directors of the new Union High School at Freewater have awarded the general contract to Alloway & George, of Spokane, at $160,529. Heating and ventilation contract was let to W. R. O'Rourke, of Walla Walla, at $33,412; plumbing to W. S. Fleming, of Portland, at $7,092. There were ten bids submitted for the plumbing, heating and ventilating.

Plans for the North Bend Hotel, North Bend, have been changed by Architect Tourtellotte, of Portland, to provide for a five-story building instead of a three-story, as at first planned.

Bids recently opened for the proposed school annex to be built to the High School in Astoria, showed Hoover & McNeil, of Albany, low on the general contract, on their bid of $58,283. The following bids were submitted for plumbing: W. S Fleming, Portland, $8,525; McPherson-Urban Co., Portland, $4,998, W. N. Smith, Astoria, $5,381.25; Arne Abrahamson, Astoria, $5,441; W. C. Laws Co., Portland, $4,728. All bids were taken under advisement.

Architect E. E. McClaren, Lumber Exchange Building, Portland, has been commissioned to prepare plans for the proposed hospital building to be built at West Linn for a group of Oregon City physicians. The structure will be two stories and basement, 47x96 ft., of hollow tile with stucco exterior. A steam heating plant will be installed, and the building complete will cost $35,000.

All bids received for the proposed school buildings to be erected in Milton were in excess of funds available, and bidders have been asked to revise their bids. The low bidder on the general contract was A. S. Whiteway, Boise, at $158,694. The following bids were submitted for the plumbing and heating work: (a) heating, (b) plumbing, (c) combined heating and plumbing bid: Finnigan & Williams, Portland, (a) $44,141; Rushlight & Hastorf, Portland, (a) $33,585; (b) $7,747; Sutherlin & Co., Walla Walla, (a) $33,923, (b) $9,217, (c) $42,940; Alloway & George, Spokane, (a) $36,685; (b) $8,700; Fullerton & Munsell, Salem, (b) $8,928; W. E. Oronk, Milton, (b) $9,356, (c) $53,412; Berg & Griggs, Tacoma, (a) $34,389, (b) $7,899; W. F. Fleming, Portland, (a) $33,500, (b) $7,092.

PROVINCE OF QUEBEC.

Montreal.

Messrs. E. and H. Madore, 2560 Notre Dame Street, West, have the plumbing and heating contract on a number of $9,000 residences being erected on Addington Avenue, Notre Dame de Grace.

J. Asselin has the plumbing contract for two semi-detached residences being built at Ville St. Laurent.

The official list of new firms registered for May 14, includes the name of F. X. Mailly, plumber, Chambly Bassin.

BRITISH COLUMBIA.

Vancouver.

Architects W. M. Dodd & Co., 828 Standard Bank Building, have been advised that the plans which they prepared some time ago for remodeling and extending the Halla school at Hanna, Alberta, have been approved, and that bids will be called for soon. British Columbia contractors are to be given an opportunity to submit bids for the work, which will cost about $50,000. Four new class rooms will be constructed, and extensive remodeling made to the present structure, with the installation of entirely new heating and plumbing equipment.

Barr & Anderson, on their bid of $1,400, recently received the contract for plumbing in the summer camp to be erected by the Rotary Club at West Point Grey.

The Empress Theater, Vancouver, is to be completely remodeled and overhauled, and extensive improvements made to the structure. New restrooms are to be installed, with special attention to plumbing and heating facilities, the improvements will cost about $25,000.

D. A. McDonald, 924 Granville Street, has been awarded the heating and plumbing contract on the large new residence to be constructed for Mrs. E. Burns at Angus Avenue and Shaughnessy Heights.

NEW JERSEY MASTER PLUMBERS IN ANNUAL CONVENTION.

(Continued from Page 423.)

459,610 violations, had caused sinks with running water to be installed in 3,937 apartments, and had caused to be repaired 18,706 water closets, and 8,782 leaders.

"A great deal of our success in carrying out this work has been due to the splendid co-operation we have received from your association," he declared warmly. "One of your presidents after another has backed us up, and it was largely because of your support that we were able to accomplish the reform of providing at least one sink and faucet in every apartment.

"We deem ourselves mighty fortunate to have the co-operation of the master plumbers of New Jersey. Sometimes a landlord, on whose property we have ordered the removal of plumbing violations will say to me peevishly: 'It looks to me as though you fellows are working for the plumbers instead of for the state!' I always answer them by saying: 'We are not working for the plumbers, but we are mighty glad to work with them.'"

The secretary of the State Tenement House Commission had been an attentive listener to the essay on the "Bath a Day" campaign, prepared by "Domestic Engineering," which had been read earlier in the session, and in his address he dwelt eloquently on the advantages of bathing.

"You can't expect girls and boys to have clean minds and clean hearts if they can't keep their bodies clean," he declared. "It is true that now and then a man rises above his environment, but if you bring up children under filthy conditions, you have got to expect that their morale will be broken down."

The Election of Officers.

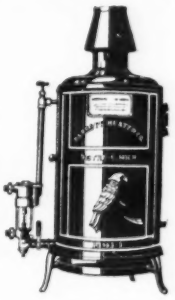
Following these addresses, the election of officers was the next event on the program. With Sheriff Wilson, a former president of the association, as chief teller, the balloting went through in record-breaking time, in as much as, with the exception of the trustees, three of whom had to be selected from five nominees, there was no opposition ticket. For good and faithful service rendered to the organization during the past year First Vice-President Stephen Fredericks, of Newark, was elevated to the presidency, and the second and third vice-presidents were moved up one, while the secretary and treasurer were re-elected to their former offices, so that the sheriff had little work to do in counting the votes—which in each case were cast by the secretary on behalf of the entire body. The newly-elected ticket follows:

President, Stephen Fredericks, of Newark.
Vice-President, Frank Fell, of Trenton.
Second Vice-President, Wm. T. J. Orriss, West Hoboken.
Third Vice-President, Joseph Durr, of Upper Montclair.
Secretary, Walter Grub, of Newark.
Treasurer, George Werner, of Orange.
Delegate at Large, J. Corcoran, of Jersey City.
Trustees: William Delhagen, of Lake Hopatcong; William Chesnut, of Montclair; C. Tiper, Elizabeth.

William A. Snudden, the retiring president, was elected a delegate to the National Convention, and Messrs. Fredericks and Corcoran were chosen to be his fellow delegates. The sum of $600 was voted as an appropriation to defray their expenses, a motion being passed that if this appropriation constituted too much of a strain on the State Association's treasury, each local be assessed accordingly.

After the election, the new set of officers were at once installed, and the convention then adjourned permanently, the delegates and their guests proceeding to the banquet hall of the Robert Treat Hotel, where the twentieth annual conven-

AUTOMATIC



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Fits the Pocketbook
Highest in Quality
Lowest in Price

Parrott Heater Co.
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Distributors New York and New England States
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SOMETHING ENTIRELY NEW IN

SILL-COCKS

Semi-Finished, Polished aluminum wheel Style N. Style O—Heavy rough pattern built for service.

STYLE N — Both shown in catalog D — STYLE O

KINSEY & MAHLER CO. *Peoria, Ill.*

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CHICAGO POTTERY CO.
Specializes
in the manufacture of
Closet Bowls and Tanks
of "Whitest Vitrified China"
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No. 25 DOUBLE BLAST

Results Are What Count

Mechanics who use DOUBLE BLAST Gasoline Fire Pots know that the maximum amount of heat can be obtained from the minimum amount of fuel, by using a DOUBLE BLAST.

The letters of the words, "DOUBLE BLAST," aptly represent many important and superior points in the construction and operation of the DOUBLE BLAST. Read them over.

Double Burners	Best
Odorless	Labor Savers
Unrivaled	Aluminum Brouzed
Blue Flame	Safety
Lasting	Time Savers
Economical	

Leading jobbers handle them. If your jobber does not handle them, send us your order and we will ship direct. Additional information and circulars will be furnished upon application.

Double Blast Mfg. Co.
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Economy Scale Remover Co., Inc.
CHICAGO HEIGHTS, ILLINOIS
Manufacturers of

Economy Boiler Seal
For making permanent repairs on cracked, leaky boilers. Saves buying new sections.
Economy Radiator Compound
Economy Scale Solvent
For automobile radiators and water jackets.
Economy Scale Remover
For removing scale from boilers.
Economy Soot Destroyer
WRITE FOR FOLDERS

Save 75% in Cost of Specialties!

The Holmberg Vacuum Steam Trap and System of Heating eliminates all air valves and unnecessary parts. Ejects all air from radiator and pipes. Saves 30% in fuel over single-pipe system. Is Fool-proof, Self-cleaning, Non-adjustable. Just what you want for new and overhauling jobs.

Write for particulars.

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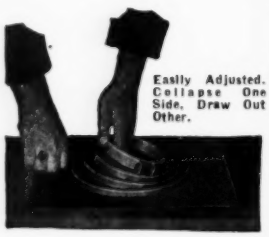
RETLAW Roof Flashing
Made of one piece of lead—*without a Seam*

This flange is adjustable to any roof, regardless of extremity in pitch or covering. Needs no hub.

Has extreme telescopic elasticity. Makes rigid joint around pipe that will not allow gap between soil pipe and collar in case of expansion, contraction, vibration or shock.

The best all-round flashing made.
Ask your jobber, or write us



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You need this bench

just as hundreds of other satisfied customers have needed and used it. Several improvements. Drop us a line and we will send you catalogue and list of hundreds of satisfied customers.

The extension table shown in illustration can be detached and attached to any bench with two bolts. Made of sheet metal.

Write now

STANDARD IRON WORKS INC.
508-10 E. 74th St. New York City

tion of the New Jersey State Association of Master Plumbers wound up with a banquet and ball, at which a good time—and then some—was "had by all."

William A. Snudden, of Morristown, retires from the presidency of this organization, after a year of devoted and distinguished service, carrying with him the grateful appreciation and esteem of every member of the State Association. The convention signified that esteem by giving him a rising vote of thanks, but it was expressed even more forcibly, earlier in the proceedings, by the enthusiastic applause which greeted the account of his stewardship, embodied in his annual report. The report follows:

President William A. Snudden's Report.

To the Officers and Members of the New Jersey State Association of Master Plumbers.

Gentlemen:—It is my pleasure and duty to present an account of my stewardship of the past year. One year ago you conferred an honor on me by electing me to the highest office within your power. Well did I realize what you had entrusted to me, also the handicap placed on the state with the increased per capita tax which could not be changed until our next convention. This I trust will be taken care of at this session. With this uppermost in my mind, my ambition was to follow what my able predecessor had tried so hard to accomplish, that of increasing our membership to one thousand throughout the state.

Many reverses were met, such as having Paterson resign, losing sixty-five members, also other associations losing many members which were beyond our power to retain. In accepting this office I promised to give you the best that was in me; this I have done, as my true and faithful colleagues on the board can vouch for, having never missed one meeting or call from the time of being elected to trustee until this present time. The experience gained during the past years has been ample recompense for the sacrifices and time given to the organization in the performance of duty for the benefit of the craft.

The various committees appointed, I can assure you, attended to all work, faithfully, which you may see by their reports.

During the year there has been only several minor complaints, all of which were placed in the hands of the committee, who, after thoroughly investigating same, were disposed of to the satisfaction of all concerned.

There has been no agreement entered into this year with the Manufacturers' Liability Insurance Co., but in visiting and talking over same with members throughout state, they express themselves as being satisfied with the cost and the rebate returned, details of which will be explained by their representative during convention session.

Your Advisory Board, composed of Messrs. Joseph Sprouls, M. J. Brady, Augustus Krieger, Geo. Turner and Chas. Zimmerman, have been very faithful to the duties assigned to them, and I now desire to thank them for the good advice that they were always ready to give. Without them your board would not have accomplished the vast amount of work placed on us this year.

At the close of the year 1920 we had a balance on hand of $1,430.38, with a membership of 833, at this convention our per capita of $6 per year was not increased. Later in June the National increased their per capita tax to $5 per year, leaving one dollar per member, or $833, to carry on our state work. This, as you know, could not be accomplished, so a committee met in Orange to devise ways and means to finance our work, which resulted in a letter being sent to each local asking their assistance; $342 has been received from various locals, with the understanding that same should be taken care of at next convention. There is now a balance of $797.88 on hand with all per capita tax and bills paid. This balance includes the $342

advanced per capita tax. The regular receipts were $5,209, the disbursements $6,908.81, making a loss during the year of $999.81.

There were three very important bills brought to the attention of your board, which required much work and time. Said bills were Bills No. 191, pertaining to the erection and awarding of contract; Bill No. 360, calling for the licensing of builders throughout the state; Bill No. 40, an act to prevent any person or persons interfering with any individual desiring to become an apprentice or learn any lawful trade. Much credit is due to Messrs. Black and Fells, of Trenton, also to all members of your board and state members.

Your Executive Board, you should feel proud of, for they were always on hand and on time, whenever called by me. In fact, as our secretary's minutes will show, they all have 100 per cent attendance and supported me loyally. There were nine regular meetings held during the year as follows: Jersey City, Union Hill, Plainfield, Trenton, Orange, Paterson and three in Newark, also one special meeting in Newark and one organization meeting in Paterson.

The board members attended the installation of the officers using the State Ritual to install the officers of Eastern Bergen, Hoboken, North Hudson, Paterson and Trenton. We also visited open meetngs in Plainfield, Newark, Orange, Jersey City and Eastern Bergen. These meetings have been the means of helping our association in keeping members together and getting better acquainted.

The next National Convention will be held June 7, 8, 9 and 10, 1921, at New Orleans, La., and I trust that New Jersey will have a good representation. We are honored by having a representative from our state on the National Executive Board, Mr. Harry J. Farrell. We have also been honored during the year by having our National President D. F. Durkin, Jr., National Director Harry J. Farrell and National Secretary George F. Uber, who attended Trenton, Newark, North Hudson and Jersey City banquets and a meeting in Paterson, for which I extend my sincere thanks for their kind thoughts of our state.

During the year there has been many advantages and opportunities afforded, through the literature sent out from the Trade Extension Bureau, also the sending of its representative, D. L. Hanson, who spent about three weeks lecturing to local associations. I have been informed that the Trade Extension Bureau is contemplating the placing of a field agent in New Jersey.

With Organizer Beck and Secretary Grub, I attended the Trenton outing, also the outing at Asbury Park. With Secretary Grub and with other members of the board, we attended the Newark and Union Hill outings. I also attended the banquets in Newark, Jersey City, North Hudson, Trenton and Morristown.

It is with much regret that I cannot report a one thousand membership, every member of your board has labored with me to bring this about. State Organizer Wm. F. Beck, as you all know, has done his part and done it well, he has not only increased our membership but has also helped the National in their organization work while in Florida.

Through the untiring work of our Third Vice-President, Wm. T. J. Orriss, and the members of North Hudson Association, they were the means of helping with the formation of the Eastern Bergen Association with twenty-five members and a new association of twenty members in Paterson. We feel very proud of Morristown and West Hudson, who have a 100 per cent membership. North Hudson, Eastern Bergen and Trenton are at present within one or two of the 100 per cent mark and are to be congratulated on their work.

During the year a great many were lost or had to be dropped, but this loss has all been regained and I can report a member-

"BRE HYGIENIC" SEAT

PATENTED DECEMBER 4, 1915
No. 213

Write for descriptive circular telling why this steel reinforced "BRE HYGIENIC" seat, open front and back is guaranteed not to come apart.

BRE Mfg. Co., Hyde Park Dist., Boston, Mass.

Automatic Storage Water Heater

KOMPAK

THE KOMPAK CO.
New Brunswick
New Jersey

C. B. BABCOCK CO.
San Francisco, Cal.
J. V. Landreth
New York, N. Y.

PORCELA

The Bath Tub Cleaner

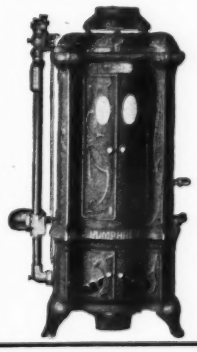
Contains no grit.
No acid.
Keeps fixtures like new.

Most contracting plumbers use Porcela and recommend it to their customers.

If you haven't Porcela in stock order from your jobber. Write us for free sample can and descriptive folders.

PORCELA-RADAX CO.
NEW BRIGHTON, PA.

No Substitute
For
Hot Water



Your customers will thank you for helping them get it the guaranteed Humphrey way. Humphrey national advertising is creating big demand—your money making chance. Ask for catalog and sales folder.

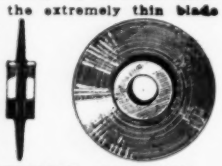
HUMPHREY COMPANY
Div. Ruud Mfg. Co.
Kalamazoo, Michigan

The Cutter Wheel You Want

ELIMINATES WASTE OF TIME AND LABOR

B&B PIPE CUTTER WHEEL

is made by experts who devote their time exclusively to making cutter wheels. They know how. The steel used is treated scientifically to uniform hardness, so that the extremely thin blade will not break. Cuts clean and clear with least resistance.



Our Positive Guarantee

goes with every B. & B. Cutter Wheel. Get one from your jobber. If it doesn't do all we claim for it, tell us; if it does, tell the other fellow.

B & B TOOL & MACHINE WORKS
549 W. WASHINGTON BLVD. CHICAGO
Cutter Wheel Specialist

SHOWER CURTAINS
and Curtain Pins

All Sizes — All Grades

Write for Samples and Price List

Sanitary Bath Curtain Mfg. Co.
85 Warren St. New York

Tank Fittings of Quality

1856 **"McSHANE"** 1921

The ORIGINAL Compound Lever Ball Cock
Elevated, Low-Down, Top and Bottom Supply
Tank Levers and Valves.

McSHANE BELL FOUNDRY CO.
BALTIMORE, MARYLAND

Your Jobber Handles Detroit Torches

The Better Torch

Every plumber has had more or less trouble with torches. The idea of the Detroit Torch is to overcome these common defects and provide better and longer service.

THE DETROIT TORCH

is built especially strong and reinforced at points that are usually weak in the ordinary torch. Wire handle and valve wheel are always cool.

Detroit Torch & Mfg. Co., Detroit, Mich.
New York Office: 45 Warren Street

ship of 864 with a gain of thirty-one members. This I consider very good under the trying conditions.

Recommendations.

That all legislative work be referred to the Executive Board, that our Ritual be used by all local associations. Also that the Executive Board visit different cities in holding of their meetings.

During the year, I received one hundred and sixty-three communications, and answered one hundred and ten. Approximately, six thousand circular letters were sent out, as an appeal to increase our membership, very good results were obtained through this drive.

Conclusion.

In conclusion I wish to thank our State Secretary, Mr. Grub, for his untiring efforts in assisting me through my administration, and making my work effective in all of my undertakings. Through his efforts it was possible to keep in touch with all matters pertaining to the welfare of every member of this grand organization.

Too much cannot be said for our First Vice-President, Mr. Fredericks, who was always ready to sacrifice his time in the interest of my work, and it is my sincere wish that he will receive the same support during his administration

I also wish to thank Mr. Sprouls, chairman of the Advisory Board, particularly for his untiring efforts in carrying out our membership drive. It is with deep regret that through the loss of a member of his family that he will be unable to be with us today. I also wish to extend my sympathy to Mr. Corcoran, our Delegate-at-Large, in the loss of a member of his family.

Thanking every member of the State Board, as well as all the members throughout the state, for their assistance in making my administration a success, I am

Fraternally yours,
(Signed) Wm. A. Snudden.

Salesmen in Attendance.

The following members of the supply fraternity were in attendance at the convention:

William J. Hepburn, manager, Seashore Supply Co., Atlantic City, N. J.

V. E. Sumwalt, Abram Cox Stove Co., Philadelphia.

Edward R. Teller, Jr., and Alfred L. DeVoe, Thatcher Furnace Co., New York.

R. Blauman, Excelsior Plumbers' Specialty Co., New York.

C. G. Johnson, Woodward-Wanger Co., Philadelphia.

F. A. Webb, Joseph A. Vogel Co., Wilmington, Del.

Howard D. James, W. V. Egbert & Co., Inc., Newark, N. J.

James F. Traynor, Crown Die & Tool Co., Chicago.

E. J. Bender, Pierce, Butler & Pierce Mfg. Corporation, Syracuse, N. Y.

Robert Savill and William J. Lodge, of Thomas Savill's Sons, Philadelphia, Pa.

Alfred J. Hoffman, Monitor Bi-Loop Radiator Co., Lancaster, Pa.

W. W. Heroy, sales manager, Hedger & Bro., Newark, N. J.

Karl W. Zoeller, The Curtainless Shower Co., Inc., New York.

Harry W. Fisher, sales manager, American Tool & Machine Co., Baltimore, Md.

"Sy" Martin, H. P. Martin & Sons, Owensboro, Ky.

W. S. Roe, William S. Roe, Newark, N. J.

The Department of Labor reports that wholesale prices in April were 5 per cent less than in March and 43 per cent under April of 1920.

Because of the British coal strike approximately 300,000 tons of coal were shipped from Norfolk to Great Britain during May.

WASHINGTON MASTER PLUMBERS MEET IN SPOKANE.

(Continued from Page 421.)

was then introduced and with the aid of his chalk and blackboard portrayed the educational feature of the National Trade Extension Bureau. The various angles of business from its inception to its greatest magnitude making comparison of the one man shop with the large corporation were visualized. The value in dollars and cents of having the details of business at one's finger tips, and the elimination of the continual guessing contest with facts for proper manipulation of business were some of the features of Mr. Greenberg's address. He implored the members to read their trade papers and to learn what the other fellow is doing, saying that "the interchange of ideas is what makes successful business, and a person should not try and live on his own ideas alone. Quality, quantity and methods of conduct are the essentials necessary for success.

"It's up to you as business men to be optimists," continued Mr. Greenberg. "An optimist is a man of vision, who sees the good in things and works out a plan for taking the good and discarding the bad. Get that straight. Don't be fooled into thinking an optimist is a hot air shooter. That's part of your job to tell the difference between the two. Give your public, your bosses in the final analysis, service for their money. The good business man gives the most service for the least money for the best profit. People have been calling plumbers robbers. They are. They've been robbing themselves of opportunities to make good, to place this profession on a good, sound basis."

Mr. Greenberg told his audience that the business of the plumber is "to earn money, not to get money."

An interesting essay on the "Bath a Day" campaign, prepared by "Domestic Engineering" was then read.

Saturday Afternoon Session.

Mr. Greenberg resumed his lecture Saturday afternoon, touching upon commercial ratings, the relationship of the manufacturer, jobber and the plumbing contractor, bookkeeping systems, banking, cost and selling price, financing the business, salesmanship, show room and advertising. Mr. Greenberg sketched on the blackboard an oak tree. "The trunk," he said, "represents business, the large limb ability, the branch reliability, the twig, confidence, and the leaf the customer. The leaf, forty feet away, must receive proportionate nourishment to the trunk or it could not live. Nature takes no short cuts and successful business likewise. It must pass through the channel of ability, reliability and confidence to reach the customer, and the National Trade Extension Bureau supplies the nourishment for the whole tree and is the soil on which the tree can be planted."

After Mr. Greenberg's talk, resolutions were introduced. Among those adopted was one giving the support of the state association to Portland, Ore., as the city for the 1925 National Convention.

Resolved, That the Washington Master Plumbers' Association as a body go on record endorsing the "Bath a Day" campaign being sponsored by "Domestic Engineering" and lend every effort for hearty co-operation and support.

James Greggs, of Tacoma, spoke on the benefits to be derived from the Portland convention and requested co-operation.

A resolution, which provided that the sum of $100 be given the Trade Extension Bureau, was then adopted.

Election of Officers.

The following officers were elected:

President, J. E. McCormack, Spokane; vice-president, Jerry J. Ward, Seattle; treasurer, A. M. Goddard, Tacoma; secretary, B. M. Richards, Everett; national delegate, J. E. McCormack, and P. J. Lavan, alternate.

For precision of manufacture and for absolute reliability

MUELLER
BRASS GOODS

have stood unrivaled for more than three generations.

H. MUELLER MFG. CO.
New York DECATUR, ILL. San Francisco

Wade Traps Are Sanitary

This grease trap for laundry trays with accessible flushing cleanout, is absolutely water and gas tight. No sewer gas can escape even when cover is removed for cleaning. Deep water seal prevents grease passing out and clogging waste pipe.

Write for catalog showing full line.

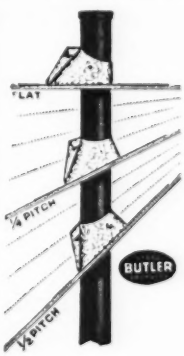
WADE IRON SANITARY MFG. CO.
551 W. Fulton St., CHICAGO

Kerosene Heaters
ARE SELLING

The K. B. Detroit heater is selling, because it is the only heater that burns either kerosene or gas equally well.

Let us tell you about this money-maker.

Detroit Heater Corporation
715-717-719 Grand River Ave., Detroit, Michigan



THE OVERTON

Adjustable Roof Flashing is in a class all its own.

A special feature is the "V" which forms a metal spring. This assures a perfectly air-tight joint.

Hugs any pipe—water tight—fits any angle. Adjusts itself without turning or twisting.

Galvanized iron or copper.

Write for descriptive literature

Manufactured by

Butler Manufacturing Co.
Minneapolis, Minn.

ESTABROOK GREASE TRAP

Designed for outside installation for hotels, restaurants and private residences where large quantities of greasy water are used. Prevents clogged drains. Easily cleaned out.

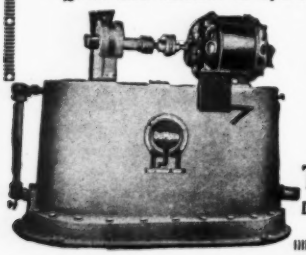
Write for catalog and prices

R. ESTABROOK'S SONS
1st and C Streets
SOUTH BOSTON, MASS.

DUMOIN Automatic Condensation Pump and Receiver

Takes care of the returns, either above or below the floor line, in vapor or gravity systems.

Quiet and efficient in operation.



Outfits furnished for 1,000 to 10,000 sq ft. radiation and for 10 and 20 lbs. pressure.

Write for full particulars.

Thompson Mfg. Co.
Des Moines, Iowa

THE INCOMPARABLE NIEDECKEN MIXER SHOWERS
PATENTED
HOFFMANN & BILLINGS MFG. CO.
MANUFACTURERS SINCE 1855
MILWAUKEE, U. S. A.

An AMERICAN Trap *for Every Lavatory*

AMERICAN Cast N. P. Traps are sturdily built of highest grade material, finished perfectly smooth inside and out. Have deep seal and full sized waterway.

A wide variety of designs to suit every need. Send for Catalog.

AMERICAN SANITARY MANUFACTURING CO.
Abingdon, Illinois
Manufacturers of Fine N. P. Brass Specialties

Fig. 384.

The place of the next convention will be chosen by the Executive Committee at its next semi-annual meeting.

A vote of thanks was then given J. C. Greenberg and Harry L. Hanson for their excellent work during the convention.

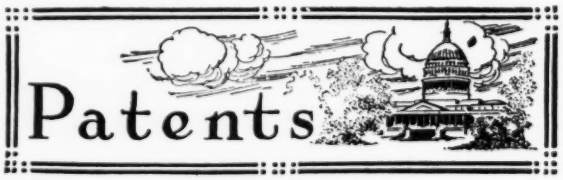
J. E. McCormack and James Greggs were elected delegates to the Oregon State Convention to represent the State of Washington.

The Annual Banquet.

Saturday evening 200 members and guests enjoyed an excellent dinner and banquet in the Elizabethan Room of the Davenport Hotel. J. Tom O'Brien acted as toastmaster and talks were given by Harry L. Hanson, of Butte, Mont.; A. M. Goddard, of Tacoma; Charles Fullman, Portland, Ore.; James Smith, Spokane; G. H. Sutherland, Walla Walla; Wm. B. Coffey and James Greggs, Tacoma, and Helen K. Fogerty, of Seattle.

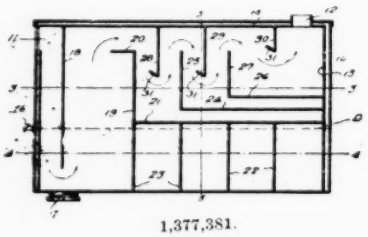
Other Entertainments.

The ladies were entertained at luncheon in the Tea Room, Friday, and later in the afternoon enjoyed a sight-seeing ride around Spokane. A theater party was held that evening. "Apple Blossom Day," a special event held under the auspices of the Spokane Valley Fruit Growers' Association, was enjoyed Saturday afternoon.



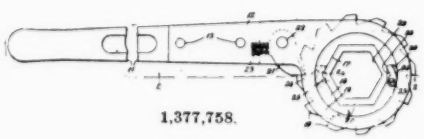
Heating Department.

1,377,381. Air Washing Device. Charles L. Worrall, Pasadena, Calif. A device of the character described comprising a tank provided in one end with an air inlet and at its other end with an air outlet, said tank containing water, a vertical plate extending downwardly below the water level at the air inlet end of the tank, a plurality of spaced perforated horizontal plates within the tank, vertical plates at the ends of said



1,377,381.

horizontal plates toward the inlet end of the tank terminating in spaced relation to the top of the tank, and a plurality of plates depending from the top of the casing between said vertical plates.

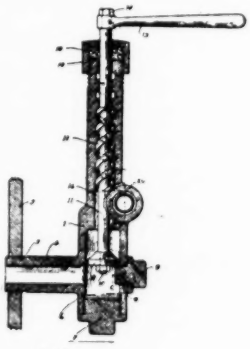


1,377,758.

1,377,758. Wrench. Bronislaw Dobazennecki, Roslyn, N. Y. In a wrench, in combination, a body, a revoluble member carried by the body, an angular opening of uniform size within the revoluble member, a removable member capable of insertion within the opening, a pivotal member carried by the revoluble member and below the face of the revoluble member to retain a removable member in said opening, teeth carried by the outward periphery of the revoluble member, a pawl carried by the

body capable of insertion within said teeth and a spiral spring within a recess of the body tending to maintain the pawl within the teeth preventing the revolution of the revoluble member in one direction.

1,377,436. Safety Water Gage For Steam Boilers. Henry August Rennick, Ottawa, Ontario, Canada. A glass gage mounting having a valve chamber provided with steam inlet and outlet extensions, a coarse pitch female thread formed in the bore of said outlet extension, a valve mounted in said chamber to close the steam outlet by the rush of steam upon the breakage of the glass, said valve having a threaded stem engaging the threads in the outlet extension, the pitch of the threads being sufficiently coarse to permit the pressure of steam to screw the valve stem and thereby close the valve upon its seat.



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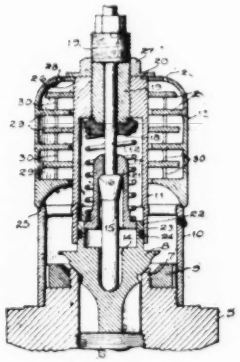
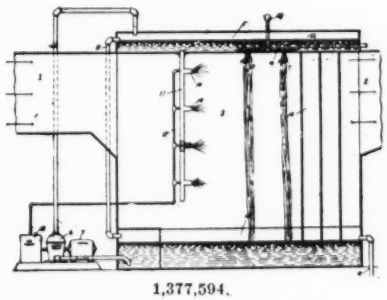


1,377,199.

1,377,199. Safety Valve. Colin Granby, Chicago, Ill. In a pop safety valve, a base having a fluid pressure inlet and a fluid, pressure escape chamber, a pop valve mechanism controlling the escape of the fluid pressure from the inlet into the chamber, said mechanism including a valve and a spring for seating the same, a valve stem loosely engaging the valve, and abutments loose on the stem, between which abutments the spring is located, one of said abutments and the stem being swivelingly connected, and the valve having a guide chamber into which said abutment extends.



1,377,594.

1,377,594. Air Humidifier. Adolph W. Lissauer, New York, N. Y. An air humidifier comprising in combination an air chamber through which an air current can be created, means for supplying to the air current a water mist, a separator, and means for supplying water in a less divided condition to the current of air and mist, at a temperature of the water mist, said water being supplied in a direction transversely of the air current and mist.

Subscriptions, aggregating $475,000,000, have been made to the $20,000,000 issue of Treasury certificates, maturing February 16, 1922. Ten Federal Reserve districts reported oversubscriptions.

ECONOMY EFFICIENCY

This is a
Pierce Down Draft, Magazine Feed, Smoke Consuming, Heating Boiler
Saves Fuel Labor

Manufactured only by
PIERCE, BUTLER & PIERCE MANUFACTURING CORP.
Brooklyn Boston Worcester NEW YORK Detroit Syracuse Newark Philadelphia Baltimore Washington

CRANE BRASS VALVES

Kerosene Water Heaters
Here is a REAL Kerosene Water Heater. Works like a gas heater—easy to operate. Wickless burner generates its own gas and throws a clean, powerful, odorless flame. Made in GRAVITY and PRESSURE types. Also made with a wick burner. All types interchangeable in same heater. Convertible to a gas heater. These heaters are guaranteed to give SATISFACTORY SERVICE. Once sold—stays sold—no comebacks. The price is low—the season is here—send for our thirty day offer.
THE HOTSTREAM HEATER CO.
"Makers of Heaters that Heat"
CLEVELAND, OHIO
(We also make a complete line of single and double copper coil, and cast iron coil gas water heaters).

FOR lasting quality and true capacity use *"KOVEN"* Pure Iron, Double Row Riveted, Galvanized Range Boilers, or *NACO* Galvanized Range Boilers made of open hearth steel. These boilers may be bought of jobbers everywhere.

L. O. KOVEN & BRO.
50 CLIFF STREET NEW YORK

Classified Advertisements

8 cents for each word including heading and address. Count seven words for keyed address. Minimum $2.00. One inch $4.00. Cash must accompany order. Copy should reach us Tuesday morning.

Situations Open

WANTED—P L U M B I N G SUPPLY salesman familiar with Southern territory. Give reference and state salary and experience. P. O. Box 571, Savannah, Ga. 5-28/6-4

W A N T E D—TWO SALESMEN ACquainted with the trade Western part of Pennsylvania and State of Ohio, to sell Plumbing Specialties. Address 328, "Domestic Engineering," Chicago. 5-28&6-11

JOBBER WANTS MAN WHO UNDERstands estimating of plumbing and heating supplies. Must have good knowledge of the line. Address 331, "Domestic Engineering," Chicago. 5-28/6-4

WANTED—10 FIRST CLASS NONunion plumbers. Must be able to do lead work. Steady work year around. Wages $1.00 per hour. Transportation refunded. J. W. Hull Plumbing & Heating Co., Memphis, Tenn.

WANTED—PLUMBERS CAPABLE OF doing jobbing or contract work. $1.00 per hour. Non-union shop. Splendid opportunity. Must have Illinois license. Population 70,000. Address 329, "Domestic Engineering," Chicago. 5-28

WANTED—YOUNG MARRIED MAN with a little capital and sales ability for mill and factory supply business in a good manufacturing town of 30,000 people. An excellent opening for right party. Address 314, "Domestic Engineering," Chicago. 4-16/6-4

Situations Wanted

SITUATION WANTED—R E L I A B L E salesman now calling on Middle West plumbing jobbers and sheet trade, desires to form connection with manufacturer as representative in this territory. I am at present employed. Can offer best of reference. Confidential. Address 330, "Domestic Engineering," Chicago. 5-28

CHICAGO MANFACTURER OF A well known staple plumbing fixture wants its product handled as a sideline by a few good traveling salesmen who have a wide acquaintance among the jobbers, particularly in the middle west and south. Write fully. All replies confidential. Address 323, "Domestic Engineering," Chicago. 5-14

For Sale

FOR SALE—PLUMBING AND HEATing business. Now doing good cash business and have a fine downtown location. Rent very reasonable, $50.00. Can clear $450 per month easily. Best on Pacific coast. Price $3,750. Address 325, "Domestic Engineering," Chicago. 5-14/7-2

FOR SALE—W E L L ESTABLISHED plumbing and heating business in a live North Dakota town. Good staple stock and equipment. Competition easy, no jobbing houses. An average yearly business of $40,000. Reason for selling will be given parties interested. Address 320, "Domestic Engineering," Chicago. 5-7-28

Miscellaneous

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Government Proposals

TREASURY DEPARTMENT, SUPERvising Architect's Office, Washington, D. C., May 14, 1921.—Sealed proposals will be opened in this office at 3 p. m., June 15, 1921, for a brick-set, down-draft fire-box, heating boiler, breeching, stack and hood, etc., in the United States Post Office, in Staunton, Va., in accordance with specification and drawings, copies of which may be had at this office or at the office of the Custodian, Staunton, Va., in the discretion of the Supervising Architect. Jas. A. Wetmore, Acting Supervising Architect.

TREASURY DEPARTMENT, SUPERvising Architect's Office, Washington, D. C., May 14, 1921.—Sealed proposals will be opened in this office at 3 p. m., June 15, 1921, for a brick-set, down-draft fire-box, heating boiler, breeching, pit, etc., in the U. S. Post Office, Kankakee, Ill., in accordance with the drawings and specification, copies of which may be had at this office or at the office of the Custodian at Kankakee, Ill., in the discretion of the Supervising Architect. Jas. A. Wetmore, Acting Supervising Architect.

TREASURY DEPARTMENT, SUPERvising Architect's Office, Washington, D. C., May 14, 1921.—Sealed proposals will be opened in this office at 3 p. m., June 15, 1921, for a brick-set, down-draft fire-box, heating boiler, breeching, etc., in the United States Post Office and Court House, Waterloo, Iowa, in accordance with specification and drawings, copies of which may be had at this office or at the office of the Custodian, Waterloo, Iowa, in the discretion of the Supervising Architect. Jas. A. Wetmore, Acting Supervising Architect.

TREASURY DEPARTMENT, SUPERvising Architect's Office, Washington, D. C., May 16, 1921.—Sealed proposals will be opened in this office at 3 p. m., June 16, 1921, for furnishing and installing a new brick-set, fire-box, heating boiler in the United States Post Office at Newberry, S. C. Drawings and specifications may be obtained from the Custodian at Newberry, S. C., or at this office, in the discretion of the Supervising Architect. Jas. A. Wetmore, Acting Supervising Architect.

TREASURY DEPARTMENT, SUPERvising Architect's Office, Washington, D. C., May 17, 1921.—Sealed proposals will be opened in this office at 3 p. m., June 15, 1921, for the installation of a sewage ejector, etc., at the United States Post Office and Custom House, Newport, R. I., in accordance with the drawing and specification, copies of which may be had at this office or at the office of the Custodian at Newport, R. I., in the discretion of the Supervising Architect. Jas. A. Wetmore, Acting Supervising Architect. 5-28

TREASURY DEPARTMENT, SUPERvising Architect's Office, Washington, D. C., May 16, 1921.—Sealed proposals will be opened in this office at 3 p. m., June 16, 1921, for Repairs to Plumbing, in the United States Post Office and Custom House, Galveston, Tex., in accordance with specification and drawing, copies of which may be had at this office or at the office of the Custodian, Galveston, Tex., in the discretion of the Supervising Architect. Jas. A. Wetmore, Acting Supervising Architect. 5-28/6-4

TREASURY DEPARTMENT, SUPERvising Architect's Office, Washington, D. C., May 21, 1921.—Sealed proposals will be opened in this office at 3 p. m., June 21, 1921, for removing the present heating system, and installing a new low pressure steam heating system, in the United States Post Office and Court House, at Little Rock, Arkansas. Drawings and specifications may be obtained from the Custodian at Little Rock, Ark., or at this office, in the discretion of the Supervising Architect. Jas. A. Wetmore, Acting Supervising Architect. 5-28/6-4

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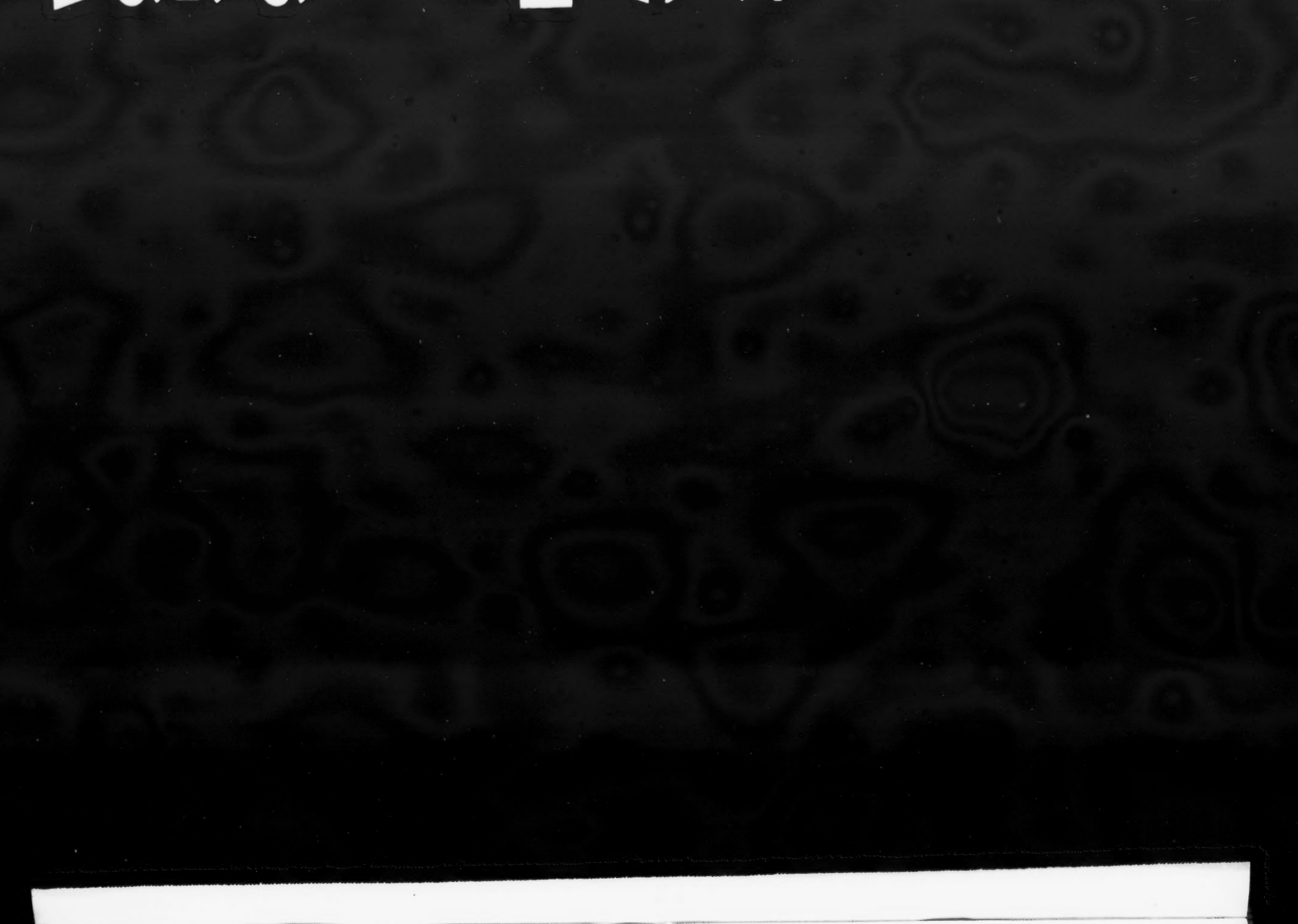
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